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Fibre input methodologies:

Main final decisions – reasons paper

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Associated documents

Publication date	Title
9 November 2018	CEPA – Quality dimensions of wholesale fibre telecommunication services
19 November 2019	CEPA - Cost of capital for regulated fibre telecommunications services in NZ - Asset beta, leverage, and credit rating
19 November 2019	Dr Martin Lally - Estimation of the TAMRP
19 November 2019	Dr Martin Lally - Review of submissions on the cost of capital for fibre network losses
19 November 2019	Ingo Vogelsang and Martin Cave - Framework for promoting competition
19 November 2019	Fibre IMs draft decision WACC calculations spreadsheet
21 May 2019	Martin Cave and Ingo Vogelsang - Financial capital maintenance and its role in fibre regulation in New Zealand
21 May 2019	Martin Cave and Ingo Vogelsang - Pricing under the new regulatory framework provided by Part 6 of the Telecommunications Act
26 May 2020	Martin Lally expert report – Further issues concerning the cost of capital for fibre input methodologies
13 October 2020	CEPA – Cost of capital for regulated fibre telecommunication services in New Zealand: Response to submissions on the Input Methodologies Draft Decision

Commerce Commission

Wellington, New Zealand

Foreword

Tēnā koutou,

The Telecommunications (New Regulatory Framework) Amendment Act 2018 set us the task of developing input methodologies for the regulation of fibre fixed line access services.



Input methodologies have never been set for fibre networks before – making this pioneering work for the Commission and the industry in New Zealand.

This paper sets out the reasons for the final decisions we have made on input methodologies for fibre regulation and is published alongside the determination giving legal effect to our decisions.

We have developed an integrated set of arrangements that are together intended to:

- Give fibre providers upfront certainty on the regulatory rules, processes and requirements that will be applied to their businesses, while also counterbalancing their incentives to increase profits at the expense of consumers due to the lack of effective competition; and
- Incentivise fibre providers to innovate, invest and improve their efficiency so that consumers receive high quality and affordable broadband services, as would occur in a competitive market.

I am grateful for the extensive engagement from stakeholders, and the exhaustive work by the team at the Commission, that has made this possible.

We now move into the second and final stage of the process for fibre regulation where we will use the input methodologies to set detailed price quality and information disclosure requirements for regulated providers.

We look forward to continuing our work with the industry and other stakeholders to lock down these arrangements before the new regime commences on 1 January 2022.

Ngā mihi nui

Tristan Gilbertson
Telecommunications Commissioner

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Executive summary

- X1 From 1 January 2022 (the implementation date), providers of regulated fibre fixed line access services (FFLAS) will be subject to new forms of regulation under Part 6 of the Telecommunications Act 2001 (the Act).
- X2 The Commerce Commission (the Commission) is responsible for determining these regulations, which are:
 - X2.1 information disclosure (ID) regulation; and
 - X2.2 price-quality (PQ) regulation.
- X3 The Commission is required to determine input methodologies (IMs) for regulated FFLAS under Subpart 3 of Part 6 of the Act by no later than the implementation date. The IMs are key upfront regulatory rules, requirements and processes that relate to how we will regulate FFLAS. The IMs are intended to promote certainty for regulated fibre service providers (regulated providers), access seekers and end-users.
- X4 This paper is the first of two papers we will publish setting out our final decisions and reasons for the fibre IMs, alongside the determinations giving legal effect to our decisions. The second reasons paper and determination will be published on 3 November 2020 and will cover our approach to valuing the financial loss asset.

Our regulatory framework for IMs

- X5 Part 6 introduces a form of regulation that is similar to that which already applies to energy networks and airports in New Zealand under Part 4 of the Commerce Act 1986 (Part 4). This is the first time that this regulatory framework has been applied to telecommunications in New Zealand. The IMs will underpin the two forms of regulatory control that must be in place by the implementation date.
 - X5.1 PQ regulation: Initially, we are required to determine the maximum revenue a regulated provider is allowed to earn from its regulated FFLAS, as well as the quality at which regulated FFLAS must be provided. This regulation is implemented through 'PQ paths'. From the implementation date PQ regulation will only apply to Chorus Limited (Chorus).
 - X5.2 ID regulation: Each regulated provider will be required to disclose information on its performance delivering regulated FFLAS. From the implementation date ID regulation will apply to Chorus and the other local fibre companies (LFCs) – Enable Networks (Enable); Northpower Fibre Limited and Northpower LFC2 (Northpower); and Ultrafast Fibre Limited (Ultrafast).

X6 The Governor-General, on the recommendation of the Minister, has made regulations under s 226, to determine the scope for the IMs, PQ regulation and ID regulation. These regulations prescribe:

- X6.1 all of the LFCs (including Chorus) are regulated providers, and all of their FFLAS are, subject to ID regulation; and
- X6.2 Chorus is a regulated provider, and all its FFLAS are, subject to PQ regulation, except FFLAS in a geographical area where another fibre provider has a fibre network as part of the ultra-fast broadband initiative (UFB initiative).

The purpose of Part 6: Section 162 of the Act

X7 The purpose of Part 6 is focussed on promoting the long-term benefit of end-users in markets for FFLAS by promoting outcomes consistent with those produced in workably competitive markets. This purpose is set out in s 162. When making decisions, we are required to give effect to this purpose and, to the extent we consider it relevant, the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services. This requirement is set out in s 166(2).

We have developed an economic framework to help guide our final decisions

X8 We have developed an economic framework to help guide the decisions we make in developing the new regulatory regime for Part 6, including the fibre IMs. The framework helps us make individual decisions that are consistent with each other, and with the requirement to best give effect to the purposes described in s 166(2) of the Act. The economic framework includes three key economic principles, an incentive framework, and competition screening considerations. At its core, our incentive regulation introduces incentives for regulated providers to behave in ways consistent with the purposes described in s 162 of the Act.

We have adopted a building blocks model

X9 We have adopted a building blocks model (**BBM**) approach to developing our IMs under Part 6. Under the BBM, we calculate the value of the network (the collection of assets) that is used to supply the regulated services; this forms the regulated provider's regulatory asset base (**RAB**). We then use the RAB, along with the regulated provider's other costs—together, the building blocks—as a basis for calculating the allowed revenue.

Our final decisions on the IMs

X10 This section summarises our key final decisions for the IMs for FFLAS as listed below.

- X10.1 Valuation of assets input methodology (**asset valuation IM**).
- X10.2 Allocation of common costs input methodology (**cost allocation IM**).
- X10.3 Cost of capital and risk input methodology (**cost of capital IM**).
- X10.4 Quality dimensions input methodology (**quality IM**).
- X10.5 Capital expenditure approvals input methodology (**Chorus capex IM**).¹
- X10.6 Treatment of taxation input methodology (**tax IM**).
- X10.7 Regulatory processes and rules input methodology (**RPR IM**).

Key decisions for asset valuation IM

- X11 The asset valuation IM sets out the rules for how assets will be valued to form the unallocated RAB. The rules in the final cost allocation IM are then applied to calculate the allocated RAB to be used for the BBM calculation and used for PQ and ID regulation. We have adopted a principles-based approach for our draft asset valuation IM, with a consistent approach across PQ and ID, generally adopting GAAP but with rules for specific situations where needed.
- X12 An asset will be eligible to enter the unallocated RAB in the year in which the asset is first employed. “Employed” is defined as available for use, and “commissioned” is defined as employed by the regulated provider in providing regulated FFLAS or services that are not regulated FFLAS (whether or not the asset is also employed in providing other services). The maximum value of the asset allowed in the allocated RAB is established in the cost allocation IM.
- X13 In addition, the initial value of a fibre asset is the cost incurred by a regulated provider in constructing or acquiring an asset (net of capital contributions) and less any depreciation determined under GAAP. We will not undertake any backwards-looking efficiency test review of or revise the base costs for assets constructed prior to the implementation date.
- X14 The RAB roll forward will be calculated using the following formula:

$$\text{RAB (end of year)} = \text{RAB (beginning of year)} - \text{Depreciation} + \text{Capital Additions} - \text{Capital Disposals} + \text{Revaluations}$$

¹ The capex IM is only relevant to regulated providers that are subject to PQ regulation. Our expectation is that Chorus is the only provider that will be subject to PQ regulation in the immediate future. We have developed the capex IM with Chorus’ likely capex profile in mind and therefore refer to the input methodology as the Chorus capex IM. Should another provider become subject to PQ regulation we will determine the applicable capex IM rules and processes at the time, drawing on the Chorus capex IM where appropriate.

- X15 The cost directly attributable and not directly attributable to regulated FFLAS is determined by applying the cost allocation IM. In terms of depreciation, regulated providers can apply a default method consistent with GAAP at implementation. They may apply an alternative method to ensure that the depreciation information disclosed under ID is consistent with the expected time profile of revenue recovery that applies at the time of disclosure.
- X16 The initial value of a fibre asset is the cost incurred by a regulated provider in constructing or acquiring an asset (net of capital contributions) and less any depreciation determined under GAAP. This approach will apply to any fibre assets added after the implementation date, including repurposed assets (eg, ducts that were previously used to provide copper services).
- X17 In terms of the treatment of Crown financing, our decision is to account for Crown financing received by Chorus in both the pre-implementation and post-implementation periods, as the product of the finance rate based on the relevant financial instruments that were used to fund the capital and the balance of Crown funding outstanding. For those LFCs subject to ID-only regulation, we have adopted a simpler approach.

Key decisions for cost allocation IM

- X18 The cost allocation IM determines the rules and methodologies that regulated providers must use to identify the portion of their total asset values and operating expenses that are associated with regulated FFLAS. Regulated providers have costs that are shared between regulated FFLAS and services that are not regulated FFLAS. Cost allocation ensures that only those costs associated with regulated FFLAS are included in the BBM calculations for the purposes of PQ and ID regulation.
- X19 Our final decision on allocating costs between different types of regulated FFLAS remains unchanged from our draft decision. Regulated providers must separately identify directly attributable costs and shared costs based on certain characteristics, including geographic coverage, individual products or service categories, or level of network functionality.
- X20 For the allocation of costs between regulated FFLAS and services that are not regulated FFLAS, those costs that are directly attributable (ie solely relating) to regulated FFLAS must be allocated to it. Shared costs are allocated using the accounting-based allocation approach (ABAA). ABAA splits shared costs using allocators that reflect how the costs were incurred.

- X21 There will be no prescriptive rules for allocating shared costs between different types of regulated FFLAS for the first regulatory period. This is a rule specific to the first regulatory period. We have excluded certain expenses from operating expenditure, such as court or other statutorily imposed penalties.

Key decisions for cost of capital IM

- X22 A key component of the IMs is how we determine the cost of capital for PQ regulation and as a benchmark for ID. The cost of capital is the financial return investors require from an investment given its risk. The weighted-average cost of capital (WACC) is an estimate of that rate of return. WACC can have a huge impact on regulated providers, and on consumer outcomes (both quality and price).
- X23 The WACC is not directly observable and therefore we have to estimate it from market data. In doing so we also estimate the range within which we believe the WACC sits and our best estimate of the WACC is the midpoint of that range. Our estimates have been based on market data as much as possible, have been subject to rigorous processes and we have also benefited from several expert reports.
- X24 In reaching our final decisions we have considered each main element of the WACC and the combination of those elements as a package. These broadly comprise the cost of debt, the cost of equity and leverage.
- X24.1 For the cost of debt, we have mainly adopted a prevailing rate approach where we estimate the risk-free rate associated with a regulated provider raising debt based on prevailing market data. We take a 5-year historic approach to estimating the associated debt premium for a BBB credit rated company to recognise the difficulty in hedging debt premium (a difference to the risk-free rate). This is based on the simple approach of NZ corporate bond issuance as a benchmark. We also allow for the costs of issuing such debt.
- X24.2 The cost of equity is inherently more difficult to estimate and consequently subject to greater uncertainty. We have adopted our standard approach of using the simplified Brannan-Lally model and our six-step process for estimating beta. This has been applied to market data on telecommunications companies to arrive at our best estimate of asset beta of 0.5. Our estimate of the tax-adjusted market risk premium (TAMRP) is an economy-wide parameter which we have updated to reflect current market data and estimate as 7.5%.

- X24.3 We have also adopted an estimate of leverage of 29% from our equity beta comparator set to address the leverage anomaly. Our final estimates have also been checked for reasonableness against estimates used by investment analysts in New Zealand and other market indicators. We believe our estimates are reasonable.
- X25 We received several submissions drawing attention to estimates made by regulators elsewhere in the world. We believe there is limited weight that can be applied to these which are affected by the type of regulation and market conditions (and policy) in those specific countries.
- X26 Given the inherent uncertainty in estimating the WACC, one legitimate final question is whether we should pick a point in the range above our best estimate where this is in the long-term best interest of end-users. The evidence we have seen would not support this and consequently we have adopted the mid-point WACC for the purposes of price-quality regulation.
- X27 We have considered the asset stranding risks faced by price-quality regulated providers of FFLAS. The evidence before us suggests that such risk is real and is not fully addressed by the ability to shorten asset lives and the protection offered by the RAB with revenue wash-up. Consequently, the IMs provide for some additional but modest compensation in proportion to the evidence before us on the likely scale of this risk.

Key decisions for quality IM

- X28 The quality IM specifies quality dimensions which will underpin the quality performance measures and statistics (performance measures) under ID regulation and quality standards under PQ regulation. We have included seven quality dimensions and example quality metrics. This comprises six fibre lifecycle dimensions: ordering, provisioning, switching, faults, availability and performance; as well as an overarching dimension of customer service.
- X29 We have made it mandatory for a PQ determination to specify quality standards for the availability and performance quality dimensions. Additional quality standards may also be specified for other quality dimensions. In addition, we have made it mandatory for an ID determination to specify performance measures for the availability, performance, faults, and customer service quality dimensions. Additional performance measures may also be specified for other quality dimensions.
- X30 The quality IM allows PQ and ID regulation to include requirements differentiated by regulated providers, geography, fibre network architecture, type of FFLAS, and classes of end-user.

Key decisions for Chorus capex IM

- X31 The Chorus capex IM prescribes the processes and rules, including the requirements on Chorus, for how we will assess and approve forecast capex allowances. We will evaluate capex proposals using an *ex-ante*, propose-and-respond assessment approach. This type of assessment will promote the purpose of Part 6 through encouraging efficient investment in the FFLAS network.
- X32 Evaluation criteria are based on the capital expenditure objective and good telecommunications industry practice and will apply to all capex categories. There are a number of assessment factors we must have regard (to the extent they are relevant) to when evaluating a capex proposal. Also, Chorus is required to outline its consultation and stakeholder engagement in the Integrated Fibre Plan, but the extent of consultation is also an information requirement and an assessment factor in relation to capex proposals.
- X33 The Chorus capex IM specifies three different expenditure categories: base capex, connection capex, and individual capex.
 - X33.1 **Base capex:** incorporates all forecast capital expenditure except for capex associated with connection capex, and **individual capex**. Base capex proposals will be split into expenditure sub-categories, as agreed by the Commission and Chorus prior to the proposal submission as part of the regulatory templates process.
 - X33.2 **Connection capex:** is expenditure associated with the connection of end-user premises where the communal fibre network already exists or will exist at the time of connection. This includes capex related to brownfields, greenfield and infill connections, and Chorus-led migrations from copper to PQ FFLAS².
 - X33.3 **Individual capex:** covers larger projects and programmes. With this type of capex, the level of uncertainty associated with the forecast expenditure can mean it is hard to evaluate at the time of base capex approval. We can also determine that the capex should be approved only for the project or programme and reported separately from base capex.
- X34 We have set out that base capex is substitutable but separate from both connection capex and individual capex. Individual capex projects and programmes are generally ring-fenced, but this requirement may be waived by the Commission.

² See paragraph 2.76.2 for the definition of PQ FFLAS.

Key decisions for tax IM

- X35 Our final tax IM sets out that tax costs will be calculated using a tax payable approach for regulated providers. We prefer this approach because it provides a good approximation of the cash flows a fibre service provider would need to meet its tax obligations for any given period. When calculating regulatory taxable income, the cost allocation IM and the Income Tax Act 2007 are to be used, to the extent practicable and subject to other relevant provisions in the IMs. All of our final decisions on the tax IM remain unchanged from the draft decision.
- X36 Returns will be disclosed under ID regulation using a post-tax WACC and a vanilla WACC, and the vanilla WACC will be used to set maximum revenues under PQ regulation. In addition, debt interest attributed to regulated FFLAS is to be calculated using a leverage and cost of debt as determined in the cost of capital IM and the asset valuation IM.
- X37 The tax position of a regulated provider's wider tax group should be ignored when estimating tax costs. Any tax losses generated by a regulated provider in the supply of regulated FFLAS should be notionally carried forward to the following disclosure year. Like the RAB value, the regulatory tax asset value of acquired assets is to remain unchanged in the event of an acquisition of assets used to supply regulated services (ie, from another regulated provider under Part 6 of the Act or from a supplier of services regulated under Part 4).
- X38 The initial regulatory tax asset value is to be set at implementation date. The initial regulatory tax asset value may be determined from the roll forward of the tax asset value of the asset from the beginning of the UFB initiative on 1 December 2011. This value should not exceed the RAB value used to establish the initial RAB as at 1 December 2011. The process of setting the regulatory tax asset value at implementation date, must have the same level of assurance or audit undertaken as for the setting of the RAB.

Key decisions for RPR IM

- X39 The RPR IM aims to increase certainty for stakeholders by underpinning key PQ decisions, and setting out important definitions that underpin ID regulation and facilitate the application of other IMs. We consider our approach to setting the RPR IM will help us implement PQ and ID regulation effectively.
- X40 We have determined the matters for the RPR IM set out in s 176(c) – specification of price, pass-through costs, and reconsideration circumstances – along with rules for regulatory balance dates. As such, the following decisions are in scope of the RPR IM.

- X40.1 **Specification of price:** we have specified allowable revenue, which comprises building blocks revenue, pass-through costs and a wash-up amount.
 - X40.2 **Pass-through costs:** we have included telecommunications' levies, local authority rates and dispute resolution scheme membership fees as pass-through costs. We have not included a "recoverable costs" category.
 - X40.3 **Reconsideration events:** we have included catastrophic event, change event, GAAP change, error and major transactions as reconsideration events.
 - X40.4 **Regulatory balance dates:** we have set 31 December year-end as the balance date for PQ purposes, but have not stipulated a balance date for ID purposes.
- X41 While the Act does not require us to define regulatory balance dates in the RPR IM, our view is that doing so will promote certainty by helping Chorus prepare to be subject to PQ regulation. We do not consider the RPR IM should cover other topics requested by stakeholders, such as details regarding wash-up and revenue smoothing mechanisms. We also do not consider the form of control for future regulatory periods, proposal/evaluation process for PQ regulation, pricing methodologies, or expenditure incentives are within scope of the RPR IM.

Chapter 1 Introduction

- 1.1 This chapter introduces the final reasons paper (**this paper**) by setting out:
- 1.1.1 the purpose and scope of this paper;
 - 1.1.2 how we have structured this paper;
 - 1.1.3 our process for implementing the new regulatory framework for fibre; and
 - 1.1.4 context for the regime – recent roll out of fibre networks in New Zealand.

Purpose and scope of this paper

- 1.2 The Commerce Commission (**Commission**) is required to determine IMs for regulated fibre fixed line access services (**FFLAS**) under Subpart 3 of Part 6 of the Telecommunications Act 2001 (**the Act**) by no later than the implementation date (1 January 2022).³
- 1.3 This paper sets out our final decisions and reasons on the IMs for regulated FFLAS specified in s 176 of the Act. These final IMs set out key regulatory rules, requirements and processes applying to the regulation of FFLAS. By doing this, the IMs are intended to promote certainty for regulated fibre service providers (**regulated providers**), access seekers and end-users.
- 1.4 As explained in Chapter 2, the IMs will underpin two forms of regulatory control for regulated FFLAS, price-quality (**PQ**) paths and information disclosure (**ID**) requirements. These two forms of regulatory control will apply to Chorus Limited (**Chorus**), and only ID will apply to the other local fibre companies (**LFCs**) – Enable Networks (**Enable**); Northpower Fibre Limited and Northpower LFC2 (**Northpower**); and Ultrafast Fibre Limited (**Ultrafast**).

How we have structured this paper

- 1.5 This paper is structured as follows.
- 1.5.1 **Chapter 2:** the regulatory framework provides our understanding of the regulatory framework and how we have applied this in reaching our final decisions on the IMs.
 - 1.5.2 Final decisions and reasons for IMs are discussed in the following chapters.

³ All statutory references in this paper are to the Act unless otherwise specified.

- 1.5.2.1 **Chapter 3:** valuation of assets input methodology (**asset valuation IM**).
- 1.5.2.2 **Chapter 4:** allocation of common costs input methodology (**cost allocation IM**).
- 1.5.2.3 **Chapter 5:** cost of capital input methodology.
- 1.5.2.4 **Chapter 6:** quality dimensions input methodology (**quality IM**).
- 1.5.2.5 **Chapter 7:** capital expenditure approvals input methodology (**Chorus capex IM**).
- 1.5.2.6 **Chapter 8:** treatment of taxation input methodology (**tax IM**).
- 1.5.2.7 **Chapter 9:** regulatory processes and rules input methodology (**RPR IM**).

Process to implement the new regulatory framework for fibre

- 1.6 To date, we have followed the required process set out in s 179 to determine the IMs.⁴ We would like to thank all those who participated in the process, including the regulated providers, end-users, access seekers, industry groups and other stakeholders. Submissions received were an essential part of our process and have helped us to make our decisions and reasons more robust and legally sound.
- 1.7 Early in the IM-setting process we set up an expert advisory panel to provide us with advice on complex issues that we face in developing the fibre IMs. Attachment B sets out more information about the members of the panel and their backgrounds. We wish to thank these experts for their assistance, along with the consultants and counsel who provided us with advice throughout this process.

How we have treated confidential information

- 1.8 Protecting confidential and commercially sensitive information is something the Commission takes seriously. Throughout our IM-setting process, stakeholders uploaded submissions via a portal on the Commission's website. This process required stakeholders to provide (if necessary) both a confidential and non-confidential version of submissions and to clearly identify the confidential and non-confidential versions. All public versions were published on our website.

⁴ See the materials published and future updates on our process to determine the IMs for regulated FFLAS on our website: <https://comcom.govt.nz/regulated-industries/telecommunications/projects/fibre-input-methodologies>

Throughout this document, confidential information has been redacted and marked as [COI].

IM papers we have published to date

- 1.9 We published a number of papers early in the process as we developed our thinking around the framework for our determinations, and our consultation process as outlined below was a critical factor in developing our thinking and conclusions. To commence our process to determine the IMs, we published two documents in November 2018:
 - 1.9.1 **9 November 2018:** an invitation to comment on our proposed approach to the new regulatory regime for fibre (**proposed approach paper**).
 - 1.9.2 **19 November 2018:** a Notice of Intention for us to begin work on IMs for regulated FFLAS.
- 1.10 On 20 November 2018 we submitted a request to the Minister of Broadcasting, Communications and Digital Media to defer the implementation date for the new regulatory regime by two years to 1 January 2022.⁵ The Minister granted this request on 23 November 2018.⁶ Since then, we have undertaken extensive consultation on the IMs, including publishing the following documents.
 - 1.10.1 **10 December 2018:** we hosted a stakeholder workshop to seek feedback on our proposed approach (materials published 19 December 2018).
 - 1.10.2 **21 May 2019:** we published our emerging views on the IMs (**emerging views paper**).
 - 1.10.3 **25 June 2019:** we hosted a workshop on our emerging views (materials published 1 July 2019).
 - 1.10.4 **1 July 2019:** we ran a consumer focus group to seek feedback on our emerging views (summary of session published 16 July 2019).
 - 1.10.5 **19 August 2019:** we published a topic paper for the regulatory processes and rules on IMs.

⁵ Commerce Commission “Request for deferral in implementation deadline of fibre regulatory regime” (20 November 2018).

⁶ Hon Kris Faafoi “Re: Commerce Commission request to extend the implementation date for the new fibre regulatory regime” (23 November 2018).

- 1.10.6 **19 November 2019:** we published our draft decision reasons paper with expert reports attached from CEPA, Dr Martin Lally, Ingo Vogelsang and Martin Cave; and a WACC calculations spreadsheet.
- 1.10.7 **11 December 2019:** we published our draft determination and intended implementation approach.
- 1.10.8 **12 December 2019:** we hosted a workshop to discuss practical issues linked to the implementation of the Chorus capex IM (materials published 20 December 2019).
- 1.10.9 **2 April 2020:** we published our draft decision reasons paper and determination for the regulatory processes and rules IMs.
- 1.10.10 **27 May 2020:** we published an expert report from Dr Martin Lally on further issues concerning the cost of capital for fibre input methodologies (the questions we asked Dr Lally to provide advice on were published on 10 July 2020).
- 1.10.11 **23 July 2020:** we published our main consultation paper and updated draft determination (excluding financial loss asset) (**further consultation paper**).
- 1.10.12 **13 August 2020:** we published our further consultation draft (initial value of financial loss asset).

COVID-19 Update

- 1.11 The COVID-19 pandemic has brought with it many challenges. The Commission wanted to make sure it was doing all it could to support the telecommunications sector as they focused on providing essential services to New Zealanders, particularly in light of the substantial increase in use of our telecommunications networks during the lockdown.
- 1.12 Therefore, on 2 April 2020, we published a letter to stakeholders explaining that we were reviewing the time frames for the fibre IM-setting process. We decided to hold a further consultation round during July and August 2020 and to extend the date for publishing our final decisions on the fibre IMs to October and November 2020.

Separate consultation papers

- 1.13 On 10 July 2020, we advised stakeholders that we had changed our timing for the remaining consultation (as reflected above in 1.10.11 and 1.10.12) and had separated our further consultation into two parts:

- 1.13.1 our main consultation paper (released 23 July 2020) and associated determination relating to changes to the majority of the IMs on which we are making decisions in this paper; and
 - 1.13.2 our second consultation paper (released 13 August 2020) relating to clarifications and changes we were considering making to our approach to valuing the financial loss asset (and associated updates to the draft determination provisions).⁷
- 1.14 As a result of separating out issues relating to the financial loss asset, we plan to publish our final decisions and reasons paper (and associated determination provisions) on this matter on 3 November 2020.
- 1.15 The IMs for asset valuation, cost allocation, cost of capital, and tax are impacted in a small number of instances by our decisions on the initial value of the financial loss asset. Whilst decisions for these IMs are contained in this reasons paper and associated determination, our methodology for determining the initial value of the financial loss asset will be specified as part of the separate decisions paper and separate schedule in the IM determination (Schedule B), published on 3 November 2020.

Our approach to consultation and submissions

- 1.16 As set out in paragraph 1.10 we have published several papers seeking submitters' views during our process of setting the fibre IMs.
- 1.17 We have consulted more extensively than required by section 179, as we considered this desirable for the development of our thinking and to ensure that interested persons had an opportunity to put their views forward.⁸
- 1.18 We have taken our consultations seriously throughout the process and carefully considered submissions. In many cases our decisions and reasons evolved in response to them.
- 1.19 However, during our process we were also conscious of the need to make a decision in the interests of giving market participants certainty and being able to meet our statutory timeframes for implementing PQ and ID regulation. This meant that we

⁷ The second consultation paper did not include our approach to Crown financing in respect of the financial loss asset which was dealt with in our main consultation paper. This paper also included a drafting change to the definition of "capital contribution" that we inadvertently omitted to make when we published the main consultation paper.

⁸ Section 179(2) only requires the Commission to give interested persons a reasonable opportunity to give their views on its draft IMs; and to have regard to any views received from interested persons.

needed to limit periods for submissions and cross-submissions and the scope of our consultations, as we approached the deadlines for our decisions.

- 1.20 The scope of our consultation in case of our main further consultation paper (published on 23 July 2020) and the second further consultation paper on the financial loss asset (published on 13 August 2020) were, in each case limited to certain targeted matters.
- 1.21 In our main further consultation paper (and the second further consultation paper) we explained the scope of the consultation and advised that we did not intend to take account of submissions that were outside the scope.
- 1.22 We nevertheless received a small number of submissions on our main further consultation paper containing views on matters that were clearly out of scope.⁹ In accordance with the approach signalled in our main consultation paper, and in the interests of fairness to other submitters, these views have not been taken into account in making our decisions. However, we note that to the extent that such views were already on the record via previous consultation processes (such as submissions on our draft decision) they were fully considered when making our decisions. The views that we treated as out of scope have been published on our website separately from this paper.

Next steps

- 1.23 The next step in our process for setting the fibre regime is to set PQ and ID regulation, which will be underpinned by our IM decisions. On 15 September 2020 we published a paper outlining our proposed process and approach to determining PQ and ID regulation. The purpose of this was to set out our early thinking on the major aspects of this regulation, including the type of information providers should publicly disclose and how we would set the amount of revenue Chorus can recover and the quality standards it must meet. The PQ and ID process will not include consultation on other matters within Part 6 or other Parts of the Act. Our process for finalising the IMs is excluded from scope of the PQ and ID process.

Context for regime – Recent roll out of fibre networks in New Zealand

- 1.24 This section explains the launch of the Ultra-Fast Fibre Broadband (**UFB**) initiative in 2009 and the extension to the UFB initiative in 2017.

⁹ Submissions on the second consultation paper that contain material that is out of scope of that consultation process will be addressed in the reasons paper to be published on 3 November 2020.

- 1.25 Over the last decade, the extent of fibre access networks in New Zealand has expanded significantly, with approximately \$3 billion invested since 2011. This new investment is largely a result of the government's UFB initiative.
- 1.26 The UFB initiative was launched by the government in 2009.¹⁰ It aimed to expand and develop New Zealand's broadband services by procuring the building of new fibre access networks in major towns and cities throughout New Zealand.
- 1.27 When the UFB initiative was initially launched, it was intended to cover 75% of New Zealand's population within ten years (ie, by 2020).

UFB partners were selected through a tender process

- 1.28 The government provided partial funding and undertook a tendering process to select UFB partners. The government established Crown Infrastructure Partners Limited (**CIP**) (at that time known as Crown Fibre Holdings Limited) to manage its investment in fibre networks constructed under the UFB initiative. The amount of Crown funding under the original UFB contracts was over \$1.3 billion.
- 1.29 The government awarded UFB contracts to four partners to deploy the UFB initiative's fibre networks. Chorus (then part of Telecom New Zealand (**Telecom**)) received most of the contracts, including in the Wellington and Auckland areas. The other three UFB partners were contracted to install UFB in three areas: Christchurch (Enable), Whangarei (Northpower) and central North Island (Ultrafast).
- 1.30 Following Telecom's selection as one of the UFB partners, Chorus was structurally separated (demerged) from Telecom on 30 November 2011. Telecom subsequently renamed itself Spark New Zealand Limited (**Spark**).
- 1.31 The other three UFB partners, Enable, Northpower and Ultrafast, agreed to establish and co-invest in new companies (ie, the other LFCs) that would build smaller regionally based networks. The other LFCs do not operate copper or mobile networks and are part of separate corporate groups that have existing investments in regulated electricity distribution networks.

UFB initiative requires UFB partners to operate a wholesale-only model

- 1.32 The UFB initiative requires the UFB partners to operate based on a wholesale-only model, under which they supply fibre services to access seekers. Reflected in the UFB

¹⁰ In October 2009, the government issued an 'Invitation to Participate' that set out the process and terms and conditions for the selection of partner(s) in the UFB initiative.

contracts, UFB partners do not sell fibre services to end-users, instead they supply what are known as 'layer 1' and 'layer 2' services, along with co-location services.¹¹

- 1.33 The access seekers (eg, Spark or Vodafone New Zealand (Vodafone)) can then re-sell fibre services to end-users, combining the wholesale fibre services with value-added services (eg, customer support, in-home equipment such as Wi-Fi routers, corporate network services and access to the internet).

2017 UFB initiative extensions

- 1.34 In January and August 2017, further UFB contracts with Chorus and other LFCs were announced, extending and speeding up the UFB initiative deployment schedule. Collectively, this saw a further \$437 million of Crown investment.
- 1.35 This extension (**UFB2**) expands coverage to around 393 cities and towns, representing approximately 87% of the New Zealand population. It is expected to be completed by the end of 2022.¹² This means that the first regulatory period will be in place while UFB2 is being finished.

¹¹ Layer 1 is the physical layer and includes the physical fibre optic cables and other passive network elements (eg, splitters). Layer 2 is the data link layer which has the functionality to transfer data between adjacent points in a network. For technical descriptions for layers 1 and 2, see "ISO/IEC 7498-1:1994": <https://www.iso.org/obp/ui/#iso:std:iso-iec:7498:-1:ed-1:v2:en>

¹² You can find information on the UFB programme on the Ministry of Business, Innovation & Employment's website: <https://www.mbie.govt.nz/science-and-technology/it-communications-and-broadband/fast-broadband/broadband-and-mobile-programmes/>

Chapter 2 Regulatory framework for IMs

- 2.1 The purpose of this chapter is to set out the regulatory framework we have applied in reaching our final decisions on the IMs for regulated providers. The chapter is structured as follows:
- 2.1.1 overview of the fibre regulatory regime;
 - 2.1.2 regulations under s 226;
 - 2.1.3 fibre fixed line access services;
 - 2.1.4 how we apply regulation over time;
 - 2.1.5 relevance and application of Part 4 of the Commerce Act 1986 (**Commerce Act**) (**Part 4**);
 - 2.1.6 purpose statements in the Act;
 - 2.1.7 key economic principles;
 - 2.1.8 incentives framework underpinning our application of regulation under Part 6;
 - 2.1.9 IMs under Part 6; and
 - 2.1.10 PQ regulation and ID regulation under Part 6.

Overview of the fibre regulatory regime

- 2.2 This section provides an overview of the regulatory regime under Part 6.

Key features of the regime

- 2.3 Figure 2.1 outlines key features of the new regulatory regime for FFLAS, as specified in Part 6.
- 2.4 Figure 2.1 goes beyond the immediate scope of this paper (being the setting of IMs) to provide an overview of the Part 6 regulatory regime. This is intended to provide high-level context for the more detailed discussion that follows.

Figure 2.1 Key features of the new regulatory regime for FFLAS¹³

Who will be regulated and how?

Regulations under s 226 provide:

- All Chorus' FFLAS will be subject to PQ regulation except in geographical areas where the other LFCs have installed fibre networks under the UFB initiative.
- All Chorus' and other LFCs' FFLAS will be subject to ID regulation.

Regulation under Part 6

- We must determine IMs setting out the upfront regulatory rules and requirements for: cost of capital; valuation of assets; cost allocation; tax; quality dimensions; regulatory processes and rules (such as reconsideration of a PQ path); and capital expenditure projects.
- We must apply the IMs to determine PQ and ID regulation by 1 January 2022. This 'implementation date' results from the two-year extension (from the original implementation date of 1 January 2020) granted by the Minister on 23 November 2018.¹⁴
- The initial regulatory period will be three years, followed by regulatory periods of between three and five years.

Key features of PQ regulation

- A revenue cap, with a wash-up mechanism, will apply for at least the first two regulatory periods.
- An anchor service, Direct Fibre Access Service (DFAS), and an unbundled fibre service, if declared in regulations made by the Governor-General under ss 227 to 229 of the Act, will be subject to a specified maximum price.
- Quality standards, and any associated incentives, must be specified.
- Prices charged by a regulated provider for PQ FFLAS that are, in all material respects, the same, are required to be the same, regardless of the geographic location of the access seeker or end-user.
- We can smooth allowed revenues or prices over two or more regulatory periods if necessary or desirable to minimise price shocks to end-users or undue financial hardship to regulated providers.

Key features of ID regulation

- ID reporting requirements will be set from the start of the first regulatory period and remain in place until they are revoked or amended.
- Regulated providers will be required to publicly disclose information under the requirements we set.
- We will summarise and analyse this information to promote greater understanding of the performance of the regulated providers, their relative service performance, changes in their service performance over time, and their ability to extract excessive profits.
- We may use the information to assess how effective the ID regime is in promoting the purpose of Part 6.

¹³ This figure is not comprehensive and is intended to provide a high-level summary only. The regulatory regime for FFLAS, including the s 226 regulations, are explained below from paragraph 2.40 onwards.

¹⁴ Minister of Broadcasting, Communications and Digital Media "Response from Hon Kris Faafoi to request for extension to implementation date" (27 November 2018).

Context: The Ultra-Fast Broadband initiative

- 2.5 This section discusses the UFB initiative and its interaction with our regulatory framework under Part 6. The background for the UFB initiative is set out from paragraph 1.24 of Chapter 1 of this paper.
- 2.6 Part 6 is a utility-style regulatory framework modelled on the Part 4 framework. It is designed to replace the current framework, where the provision of fibre services by Chorus and the other LFCs under the UFB initiative is governed by contracts with CIP.
- 2.7 In some instances, the Act expressly directs us to consider requirements of the UFB initiative, such as in calculating the initial regulatory asset base (**RAB**) under s 177 or specifying the initial points of interconnection (**POIs**) under s 231. There are other cases where aspects of the price or non-price terms of services are rolled over beyond the implementation date (for example, where regulations are issued in respect of anchor services under s 227).¹⁵
- 2.8 In a more general sense, the characteristics of the market have been shaped by features of the UFB initiative, such as the effect of Crown subsidies, discussed below. However, we expect this influence to reduce as the Part 6 framework develops and we move beyond the first regulatory period.

Government Policy Statement

- 2.9 In 2011, when it put the UFB initiative in place, the Government also issued a Government Policy Statement (**GPS**) to the Commission under s 19A, concerning incentives for companies to invest in broadband infrastructure. In October 2019, the GPS was revoked.¹⁶

Crown subsidies

- 2.10 The UFB initiative has featured subsidies from the Crown, in the form of financing on concessional terms. The UFB initiative and the associated subsidies provided by the Crown were premised on the regulated providers complying with the terms of the tender, which required rolling out the fibre network ahead of demand and meeting quality standards set by CIP. As a result, the outcomes observed in the supply of regulated FFLAS, at least as of the implementation date, might be different from the outcomes that might have been observed in a workably competitive market without government subsidies.
- 2.11 In setting the IMs, we have adopted the view that our decisions should take the presence of Crown subsidies as part of the factual background for regulated FFLAS markets.

¹⁵ See clauses 14(3) and (4) of Schedule 1AA.

¹⁶ See the Gazette: <https://gazette.govt.nz/notice/id/2019-go4841>

Fibre Deeds

- 2.12 The UFB initiative required that fibre providers who offered services that used networks developed (in whole or in part) with Crown funding give undertakings to the Crown (**Fibre Deeds**). Given under Part 4AA of the Act, the Fibre Deeds require:
- 2.12.1 non-discrimination in relation to the supply of wholesale telecommunications services provided using, or that provide access to unbundled elements of, a fibre provider's fibre network;
 - 2.12.2 design and build of the fibre network in a way that enables equivalence in relation to the supply of unbundled layer 1 services on or after 1 January 2020 for UFB1 and 1 January 2026 for UFB2; and
 - 2.12.3 equivalence in relation to the supply of unbundled layer 1 services on or after 1 January 2020 for UFB1 and 1 January 2026 for UFB2.¹⁷
- 2.13 The concept of FFLAS is broad enough to cover all the services supplied under the Fibre Deeds. Sections 206 and 230 also allow modifications to be made to the Fibre Deeds. Subject to any such modification, regulation under Part 6 applies in parallel with the equivalence, non-discrimination and supply obligations under the Fibre Deeds.
- 2.14 While regulated providers will be subject to the provisions of the Commerce Act that prohibit restrictive trade practices and certain business acquisitions, subpart 6 of Part 4AA provides specific Commerce Act authorisations for the UFB initiative itself.

Submissions on the GPS and UFB Initiative

- 2.15 Enable and Ultrafast expressed their disappointment about the revocation of the GPS and said they did not agree that the history of the UFB initiative has limited relevance to decisions under Part 6. In their submission on our draft decision they said:¹⁸

We agreed to invest in the fibre network relying on a commitment from the Government that any future regulation would take into account the start-up risks associated with this investment; we are now faced with regulation that does not take account of those start-up risks because, the UFB GPS having been revoked, the Commission now takes the view that “*the historical requirements of the UFB initiative itself are of limited relevance to the implementation of regulations under Part 6*”. We do not agree that the revocation of the UFB GPS means the history of the UFB initiative has limited relevance to decisions under Part 6.

¹⁷ The definition of ‘equivalence’ is set out in s 156AB and included in the glossary of terms in Attachment A.

¹⁸ Enable and Ultrafast “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraphs 2.2-2.3. See also L1 Capital “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 27.

- 2.16 We acknowledge Enable and Ultrafast's view on the relevance of the UFB initiative to regulation under Part 6. We therefore have moderated the text in paragraphs 2.5 to 2.8 above to better describe the UFB initiative and its interaction with our regulatory framework under Part 6.

We will be required to make PQ path and ID determinations

- 2.17 Part 6 introduces a form of utility-style regulation that is already applied to energy networks and airports in New Zealand under Part 4. This is the first time that this framework has been applied to telecommunications in New Zealand.

2.17.1 Under PQ regulation, we are required to determine the maximum revenue and/or prices a regulated provider is allowed to earn from its PQ FFLAS, as well as the minimum quality at which PQ FFLAS must be provided. This is implemented through 'PQ paths'.¹⁹

2.17.2 Under ID regulation, each regulated provider will be required to disclose information in relation to its ID FFLAS that allows us and stakeholders to assess whether the purpose of Part 6 is being met.

- 2.18 PQ paths and ID determinations, issued under s 170, will be underpinned by the IMs, the development of which is the focus of this final decision. The IMs are intended to promote certainty for regulated providers, access seekers and end-users regarding the rules, requirements and processes applying to the regulation of FFLAS under Part 6.

- 2.19 IMs, PQ regulation and ID regulation are explained in more detail later in this chapter from paragraph 2.400.

A building blocks approach to PQ and ID regulation

- 2.20 PQ regulation of utilities is often based on a building blocks model (**BBM**). BBM is an internationally recognised method of implementing PQ regulation, and has been adopted in the context of Part 4.

- 2.21 We also note that the framing of the legislation, together with background material (including the Minister's review of the telecommunications regulatory framework

¹⁹ The definition of 'price' in s 164 allows us to set maximum prices or to cap total revenue. However, under s 195, we are limited for the initial PQ paths to setting a revenue cap. Individual maximum prices are set only for anchor services and DFAS initially and only to the extent that regulations are made for them under ss 227-228. During the periods when the revenue cap applies, Chorus, subject to the Fibre Deeds, will be free to structure its prices for other PQ FFLAS as it sees fit, provided that it complies with the overall revenue cap.

conducted under the now-repealed s 157AA), demonstrates that Parliament contemplated that we would adopt a BBM under Part 6.

- 2.22 We consider that the BBM approach is well understood in New Zealand, and sufficiently flexible to address implementation issues that might arise.
- 2.23 For these reasons, we consider that a BBM approach with a regulatory asset base (**RAB**) roll forward would likely give best effect to the purposes set out in s 166, to which we are required to give effect.²⁰
- 2.24 As we noted in our emerging views paper, all stakeholders that expressed a view on this topic supported a BBM approach to Part 6 regulation in submissions on our Proposed Approach paper.²¹ Submitters who responded to our draft decision were not opposed, and did not suggest an alternative, to our proposed BBM approach to PQ and ID regulation.

BBM approach for PQ regulation

- 2.25 Incentive-based BBM regulation creates financial incentives which align firms' interests with those of their customers in reducing costs and becoming more efficient. This alignment of incentives is achieved over regulatory control periods, where the maximum revenues (or prices) the firm can earn are specified up front.
- 2.26 By setting this maximum revenue, the regime provides an *ex-ante* opportunity for the regulated provider to earn its allowed return. The allowed return under a BBM approach is the best estimate of the return that an efficient firm has an *ex-ante* opportunity to earn in a workably competitive market (sometimes referred to as a 'normal return'). The regulated provider can outperform this allowed return by becoming more efficient. Regulated providers enjoy the benefit of these efficiencies (in the form of higher profits), and the efficiencies are then shared with end-users at the next reset in the form of reduced revenues or prices.²²

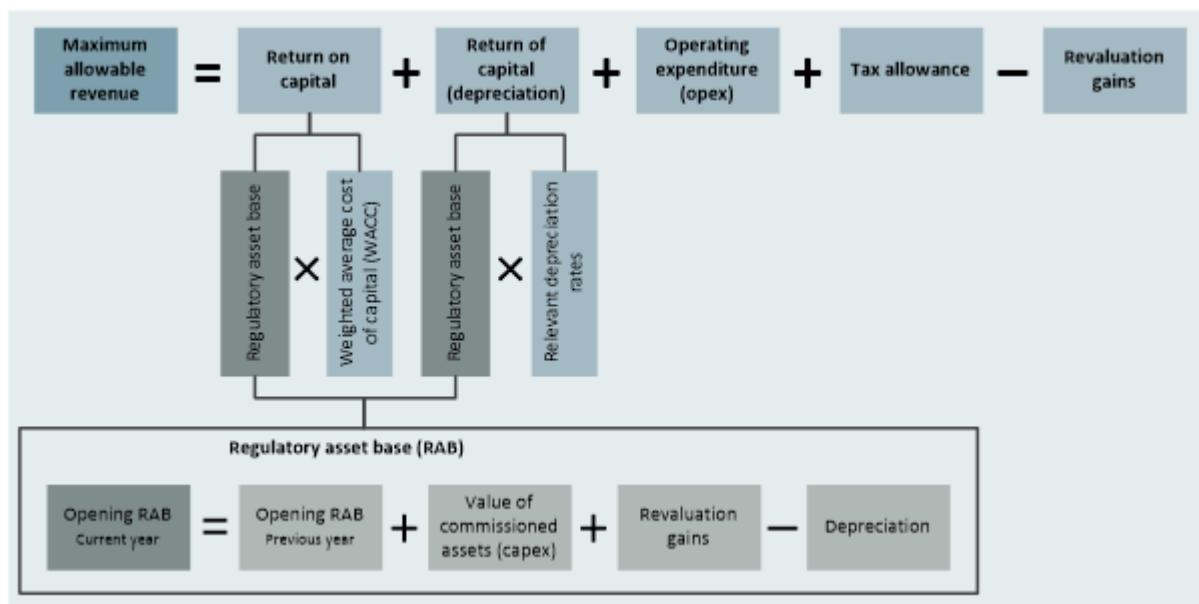
²⁰ Under the Asset Valuation IM, we must determine how the 'initial' value of the RAB is established at the start of the new Part 6 regime. We must then decide how the RAB value is "rolled forward" over time (ie, updated year-on-year) (referred to in this paper as the "RAB roll forward"). See also paragraphs 3.9 and 3.253-3.263 in Chapter 3.

²¹ Commerce Commission "Fibre regulation emerging views – technical paper" (1 May 2019), paragraphs 82-85. See also 2degrees "Submission on new regulatory framework for fibre" (21 December 2018), page 10; Chorus "Submission on new regulatory framework for fibre" (21 December 2018), pages 2, 22 and 59; and Enable, Ultrafast Fibre and Northpower Fibre "Submission on new regulatory framework for fibre" (21 December 2018), page 11; and Spark "Submission on new regulatory framework for fibre" (21 December 2018), paragraph 53.

²² The 'strength' of these incentives can be altered by increasing or decreasing the share of any efficiency gain retained by the suppliers.

- 2.27 The BBM approach is used to calculate the maximum revenues (or prices) based on delivering the regulated services over the regulatory period.
- 2.28 Figure 2.2 below shows an illustrative example of the components of a BBM calculation. We note that Figure 2.2 is intended only to illustrate how BBM works and does not necessarily include every and each building block that could be included in the calculation of maximum revenues. The specific building blocks that will be included in the application of the methodology under Part 6 will be decided as part of making the PQ determination and may change from one regulatory period to another.

Figure 2.2 Illustrative example of calculation of annual maximum revenues under BBM



- 2.29 One way a regulated provider may seek to cut its costs and increase profitability under an incentive-based BBM approach is by decreasing its quality of service—for example, by deferring maintenance work or avoiding expenditure to upgrade the network, which could lead to a lower service quality than what end-users demand.
- 2.30 Imposing price regulation without also monitoring and enforcing the quality of the service provided would not achieve the purposes of Part 6. Preventing a regulated provider from profiting from a sub-standard service quality is accordingly as important as capping revenues and/or prices.
- 2.31 Under Part 6 a revenue cap must apply for the first two regulatory periods. This requirement exists because s 195 requires us to specify the maximum revenues that may be recovered, and not specify the maximum price or prices that may be

charged, for each regulatory period that starts before the ‘reset date’. The earliest the reset date could occur is during the course of the second regulatory period.²³

- 2.32 Part 6 also requires us to set PQ paths which include quality standards. We will apply the quality IM when setting these quality standards. The PQ paths may include incentives on the regulated provider to maintain or improve its quality of supply.²⁴ Note that the quality standards we set are not part of the BBM calculation. Our final decision on the quality IM is set out in Chapter 5.

BBM approach for ID regulation

- 2.33 We will also use BBM as part of ID regulation to underpin the assessment of returns. Measuring returns is an important aspect of assessing whether excessive profits are being limited, and whether financial capital is being maintained. Measuring returns therefore assists us and other interested parties in assessing whether the objectives set out in s 166(2) are being met.

How we use regulatory WACC as part of the BBM approach for PQ and ID

- 2.34 The cost of capital IM sets out the rules and processes for us to estimate the weighted average cost of capital (**WACC**) that would be reflective of a normal return in the provision of FFLAS. We refer to the WACC that will be estimated for the purposes of PQ and ID regulation, based on the rules specified in the cost of capital IM, as regulatory WACC. As is the case with determining allowable revenues under PQ regulation, under ID regulation, asset values, capex, and opex all need to be appropriately allocated to the particular service to which they relate.
- 2.35 We will be able to do an *ex-post* review comparison of a regulated provider's returns and our estimate of the cost of capital (provided that the returns and cost of capital are calculated on a consistent basis). This will allow us to consider whether excessive profits are being earned, and whether financial capital is being maintained (in line with our economic principles – discussed from paragraph 2.272).
- 2.36 Where returns are consistently higher than the regulatory WACC, this may imply that regulated providers are not appropriately limited in their ability to extract excessive profits (a limit that is required under s 162(d)).
- 2.37 Note that our ID analysis might not exclusively be *ex-post*. For example, we may also analyse the revenues regulated providers intend to recover through their proposed

²³ Under s 225 the reset date may only follow a Commission PQ review and recommendation under s 209 which must take place at least three years after the implementation date (1 January 2022). Since the first regulatory period starts on the implementation date and lasts for 3 years, a review under s 209 can only occur after the start of the second regulatory period. Accordingly, the earliest reset date would be during the second regulatory period and therefore a shift to maximum prices could not come into effect until at least the third regulatory period.

²⁴ Section 194(3).

prices going forward, and whether these revenues reflect an expectation of a normal return. Regulatory WACC estimates determined for ID purposes could be an important component of this analysis.

- 2.38 A further explanation of ID regulation is provided at paragraphs 2.410-2.415 below.

How IMs are used in a building blocks approach

- 2.39 The IMs set out our approach to calculating the building blocks that make up the BBM (see Figure 2.2 for an illustrative example of how BBM works). The IMs must be applied when we make PQ and ID determinations. For example:
- 2.39.1 the cost of capital IM sets out how the WACC will be determined;
 - 2.39.2 the asset valuation IM sets out how each regulated provider's assets used to provide regulated FFLAS will be valued, as well as the approach to depreciation and treatment of revaluations;
 - 2.39.3 the cost allocation IM sets out how asset values and operating expenditure will be allocated between regulated FFLAS and other services;
 - 2.39.4 the tax IM sets out how the tax allowance is calculated;
 - 2.39.5 the Chorus capex IM sets out the requirements, criteria, timeframes and processes for evaluating capital expenditure projects; and
 - 2.39.6 the regulatory processes and rules IM prescribes the specification and definition of revenues, including what costs can be passed through to prices, and the circumstances in which a PQ path could be reconsidered within a regulatory period.

Regulations under s 226

- 2.40 Under s 226, the Governor-General may make regulations prescribing a person who provides FFLAS as being subject to ID regulation, PQ regulation, or both.
- 2.41 Regulations under s 226 must also describe the services in respect of which the person is subject to ID regulation, PQ regulation, or both.
- 2.42 The regulations under s 226 also have implications for other provisions in the Act, such as obligations on regulated providers subject to PQ regulation to provide regulated services under ss 198-200, and to maintain geographic consistency of pricing under s 201. We discuss the meaning of s 201 in more detail in paragraphs 2.70 to 2.74 below.

Procedural requirements for regulations made under s 226

- 2.43 Section 226(4) requires the Commission to consult with interested persons and recommend to the Minister that regulations be made. Section 226(6) provides that regulations that subject a regulated provider to ID regulation or PQ regulation can only be made if the Commission has advised the Minister that it is satisfied that the person provides FFLAS in a market where the person can exercise a substantial degree of market power.
- 2.44 However, clause 13 of Schedule 1AA simplifies the process for the first regulatory period by specifying that ss 226(4) and 226(6) do not apply in relation to any regulations made under s 226(1) that come into force before the start of the first regulatory period.

Draft regulations under s 226

- 2.45 The exposure draft of regulations proposed to be made under s 226 was published on 6 June 2019 (**draft regulations**). The draft regulations indicated that:
- 2.45.1 all of Chorus' FFLAS would be subject to both PQ and ID regulation; and
 - 2.45.2 all of the other LFCs' FFLAS would be subject to ID regulation.
- 2.46 Our draft decisions, published on 19 November 2019, and draft fibre IM determination, published on 11 December 2019, were based on the draft regulations.

Regulations made under s 226

- 2.47 The Telecommunications (Regulated Fibre Service Providers) Regulations 2019 (**the Regulations**) provide for Chorus and the LFCs to be subject to ID regulation in respect of all FFLAS, and for Chorus to be subject to PQ regulation for all FFLAS except to the extent that a service is provided in a geographical area where a regulated provider (other than Chorus) has installed a fibre network as part of the UFB initiative.²⁵

²⁵ The Telecommunications (Regulated Fibre Service Providers) Regulations 2019 were made on 18 November 2019, and notified in the Gazette on 21 November 2019.

Regulation 5 - Persons subject to ID regulation

- 2.48 Regulation 5 (**reg 5**) provides that each person set out in column 1 of the following table is subject to ID regulation under Part 6 in respect of the services set out in column 2:

Column 1 Person subject to information disclosure regulation	Column 2 Services subject to regulation
Chorus Limited	All FFLAS
Enable Networks Limited	All FFLAS
Northpower Fibre Limited	All FFLAS
Northpower LFC2 Limited	All FFLAS
UltraFast Fibre Limited	All FFLAS

Regulation 6 - Persons subject to PQ regulation

- 2.49 Regulation 6 (**reg 6**) provides that each person set out in column 1 of the following table is subject to PQ regulation under Part 6 in respect of the services set out in column 2:

Column 1 Person subject to price-quality regulation	Column 2 Services subject to regulation
Chorus Limited	All FFLAS, except to the extent that a service is provided in a geographical area where a regulated provider (other than Chorus) has installed a fibre network as part of the UFB initiative.

- 2.50 In summary, the Regulations provide:

- 2.50.1 all regulated providers' FFLAS are subject to ID regulation (reg 5); and
 - 2.50.2 all Chorus' FFLAS (except to the extent that a service is provided in a geographical area where another regulated provider has installed a fibre network as part of the UFB initiative) (**the proviso**) are subject to PQ regulation (reg 6). Reg 6 comes into force on 31 December 2021.
- 2.51 Reg 6 differs from the draft regulations: rather than providing that all Chorus' FFLAS would be subject to PQ regulation, it introduces the proviso exempting Chorus' FFLAS from PQ regulation in geographical areas where an LFC other than Chorus has built a UFB fibre network. The purpose of introducing this proviso was to address submissions that Chorus should not be subject to PQ regulation in areas where LFCs had built a UFB network and were only subject to ID regulation, "consistent with the

regulatory framework which provides for less intrusive regulation where competition is present".²⁶

- 2.52 The Regulations retain PQ regulation where Chorus builds networks outside of the UFB initiative and where it is likely to be the only fibre provider and face only limited competition from other technologies, eg, fixed wireless access.

Regulations made on the basis of s 226(3)(a): “geographic area in which the service is supplied”

- 2.53 Section 226 provides that the regulations must describe the services in respect of which a regulated provider is subject to ID regulation, PQ regulation or both. The regulations may describe a service with reference to any one or more of the following:²⁷

- (a) the geographic area in which the service is supplied;
- (b) the service’s end-users;
- (c) the service providers who seek access to the service;
- (d) the technical specifications of the service;
- (e) any other circumstances in which the service is supplied.

- 2.54 The Regulations describe services with reference to s 226(3)(a): “the geographic area in which the service is supplied”.

Focus of reg 6: the overlaps between Chorus’ commercial (non-UFB) networks and other LFCs’ UFB networks

- 2.55 Although the majority of Chorus’ fibre network was built pursuant to the UFB contracts, some of that infrastructure has been built independently of the UFB initiative in towns or cities where another LFC secured the UFB contract.
- 2.56 It is foreseeable that Chorus will construct further fibre networks in those areas on a commercial basis. Reg 6 is concerned with these overlaps and requires the Commission to draw a distinction between Chorus’ “PQ-regulated FFLAS” and Chorus’ “ID-only FFLAS”.
- 2.57 One objective of the Act was for PQ regulation to apply to the extent necessary to address a lack of competition.²⁸ The underlying policy rationale was to adopt a

²⁶ Office of the Minister of Broadcasting, Communications and Digital Media “Cabinet Paper” (12 November 2019).

²⁷ Section 226(3).

²⁸ Telecommunications (New Regulatory Framework) Amendment Bill 2017 (293—1) (explanatory note).

proportional approach to regulation, so that PQ regulation would be imposed to the extent a provider faces insufficient competitive constraint on their services.²⁹

- 2.58 There are two elements to the proviso discussed at paragraph 2.50.2 above. It applies to the extent that (1) a service (FFLAS) is provided (2) in a geographical area where an LFC has installed a fibre network as part of the UFB initiative. The Act includes the following definitions that are used in the proviso:

FFLAS: ‘a telecommunications service that enables access to, and interconnection with, a regulated fibre service provider’s fibre network’.

Fibre network: ‘a network structure used to deliver telecommunications services over fibre media that connects the user-network interface...of an end-user’s premises, building or other access point to a regulated fibre service provider’s fibre handover point.’

Interpretation of reg 6

- 2.59 Reg 6 provides for Chorus to be subject to PQ regulation for all FFLAS:³⁰

except to the extent that a service is provided in a geographical area where a regulated fibre service provider (other than Chorus Limited) has installed a fibre network as part of the UFB initiative.

- 2.60 The reference in reg 6 to “a service [being] provided” is capable of different interpretations. There are three available locations at which a service can be said to be provided:

- 2.60.1 at the handover point (since FFLAS are wholesale services that are supplied to access seekers);
- 2.60.2 at the premises, building or other access point of the end-user who is the ultimate recipient of the service; or
- 2.60.3 wherever the assets used to supply the service are located.

- 2.61 In the paragraphs that follow, we set out our view of which interpretation of reg 6 best fits with the purpose and scheme of the legislation.

The phrase “a service [being] provided” in reg 6 refers to a service provided to an end-user

- 2.62 We noted at paragraph 2.60 above that there are three possible interpretations of where a service could be “provided”: at the handover point, at the premises, or where the assets used to supply the service are located.

²⁹ Office of the Minister for Communications “Review of the Telecommunications Act 2001: final policy decisions for fixed line communications services” (7 December 2016).

³⁰ Telecommunications (Regulated Fibre Service Providers) Regulations 2019.

- 2.63 We consider the second alternative for interpreting the location at which “a service is provided” set out at paragraph 2.60.2 above (ie, at the premises, building or other access point of the end-user who is the ultimate recipient of the service) is consistent with the context and purpose of the legislation. While FFLAS are wholesale services, the demand for FFLAS is derived from the competitive dynamic (or absence thereof) in respect of the end-users who are the ultimate recipients of the service, and who are the focus of the purposes set out in s 166(2) of the Act. Access seekers only purchase FFLAS from Chorus (and other LFCs) in order to supply end-users. The underlying purpose of reg 6 is to exempt Chorus from PQ regulation where it is subject to more competitive constraints in respect of end-users relative to areas where it faces no competition from other fibre networks.
- 2.64 In our view, the alternative interpretations of “a service [being] provided” (ie, as meaning either the handover point, or location of the assets used to supply the service) do not promote the purpose of the legislation for the following reasons.
- 2.64.1 In terms of defining the provision of the service by reference to the handover point (as set out at paragraph 2.60.1 above), given the fibre handover point is defined with reference to the specified POI “for the relevant end-user’s premises”,³¹ it would still be necessary to identify the end-users in respect of whom the FFLAS service is supplied. To say that a service is supplied in a geographical area where an LFC has a handover point would not help to identify the end-users from whom the Regulations intend to remove PQ regulation.
 - 2.64.2 Defining the provision of the service by reference to the location of the assets used to provide it (as set out at paragraph 2.60.3 above) may promote unintended outcomes. Not all assets are required to provide regulated FFLAS to users in a specific geographic area. Some shared assets (eg, a central office building) may be required to provide regulated FFLAS outside a specific geographic area. Defining the provision of a service by reference to the location of assets may also provide undesirable incentives. In particular, Chorus may find it advantageous, on the basis of differences in regulatory treatment, to shift assets from areas subject to ID regulation to areas also subject to PQ regulation (or vice versa). For these reasons, it would not be consistent with the purpose of reg 6 to determine the application of PQ regulation based on where assets are located.
 - 2.64.3 A location-based interpretation would also be inconsistent with the general approach to cost allocation in the IMs. For example, the allocation of the cost of assets that are used partly to supply regulated FFLAS and

³¹ Section 5, definition of ‘fibre handover point’.

partly to supply copper services is linked to the use of the asset for supplying different services, not its location.

- 2.65 We consider that the intended focus of reg 6 is on the geographical location of the end-users who are the ultimate recipients of FFLAS, rather than on the physical location of the corresponding handover point or of the assets used to supply that service (because this is where the competitive dynamic, or lack thereof, operates). The underlying rationale is that Chorus should not be subject to PQ regulation in respect of end-users in areas where LFC UFB has been installed as some competition between fibre networks is possible in these areas, and the LFCs in these areas will be subject to ID-only regulation.

Identifying the “geographical areas” in which another regulated provider has installed a UFB fibre network

- 2.66 As noted above at paragraph 2.54, the Regulations define the scope of regulation by reference to the geographic(al) area. This suggests that the Regulations are not focused on whether a particular end-user actually has access to an LFC connection (or has such a connection installed), but contemplates a more flexible definition of geographical areas that does not require the Commission to define a “geographical area” with reference to an individual section or title.
- 2.67 In determining the scope of a given “geographical area”, there is inevitably a trade-off between precision and practicability. By defining the scope of regulation by reference to geographical areas and not end-users, the Regulations require the Commission to exercise judgement, provided its approach to defining these areas best promotes the purposes of the Part 6 regime.
- 2.68 The UFB contracts determined where the LFCs were required to construct a fibre network, and the end-users whom that network had to be available to serve. It follows that the coverage areas in the UFB contracts will be a useful starting point to identify the geographical areas caught by reg 6. The Commission intends to draw on the data used for the determination of specified fibre areas (SFAs) under s 69AB in this process.
- 2.69 We will make decisions regarding how we will implement the Regulations under the process for setting PQ and ID regulation. This will involve applying the rules in the IMs, summarised at paragraphs 2.75-2.77 below. We will consider how to specify the geographical areas where PQ regulation applies to Chorus’ FFLAS as part of our PQ and ID regulation programme of work.

Geographically consistent pricing of PQ FFLAS

2.70 Section 201 provides:

A regulated fibre service provider who is subject to price-quality regulation must, regardless of the geographic location of the access seeker or end-user, charge the same price for providing fibre fixed line access services that are, in all material respects, the same.

- 2.71 We consider that s 201 only requires Chorus to offer geographically consistent pricing in areas where it is subject to PQ regulation.
- 2.72 On a literal reading, s 201 is capable of being interpreted as applying to all services (ie, on the basis that Chorus is a “regulated fibre service provider who is subject to price-quality regulation” and it must offer geographically consistent pricing whenever it supplies FFLAS, regardless of whether those particular services are subject to PQ regulation). However, we consider that Parliament intended s 201 to apply only to those services subject to PQ regulation, and not services that are subject to ID regulation only, for the following reasons:
 - 2.72.1 section 201 is within subpart 6 (concerned with PQ regulation); and
 - 2.72.2 there are other instances in the Act where regulation is described by reference to the regulated provider providing the services, when it is clear the intention is only to capture that regulated provider to the extent that they provided services regulated under s 226.³²
- 2.73 Section 226(2) provides that regulations made under s 226 must state the name of the regulated provider and describe the services in respect of which the person is subject to regulation. That requirement would be frustrated if some elements of PQ regulation (ie, the requirement to price services on a geographically consistent basis) applied on a blanket basis to all services.
- 2.74 In the case of geographical areas where other LFCs provide FFLAS, Chorus’ ability to compete with those LFCs could be frustrated if it were required to price its FFLAS on a geographically consistent basis.

Services subject to regulation

- 2.75 For the purposes of our IM determination and within this paper, we categorise regulated FFLAS into FFLAS classes. In the IM determination regulated FFLAS is

³² See for example s 193 which provides “A regulated service provider who is subject to price-quality regulation in respect of [FFLAS] must...apply the price-quality paths set by the Commission”. It is clear that the provider is only required to apply PQ paths to those services that are subject to PQ regulation.

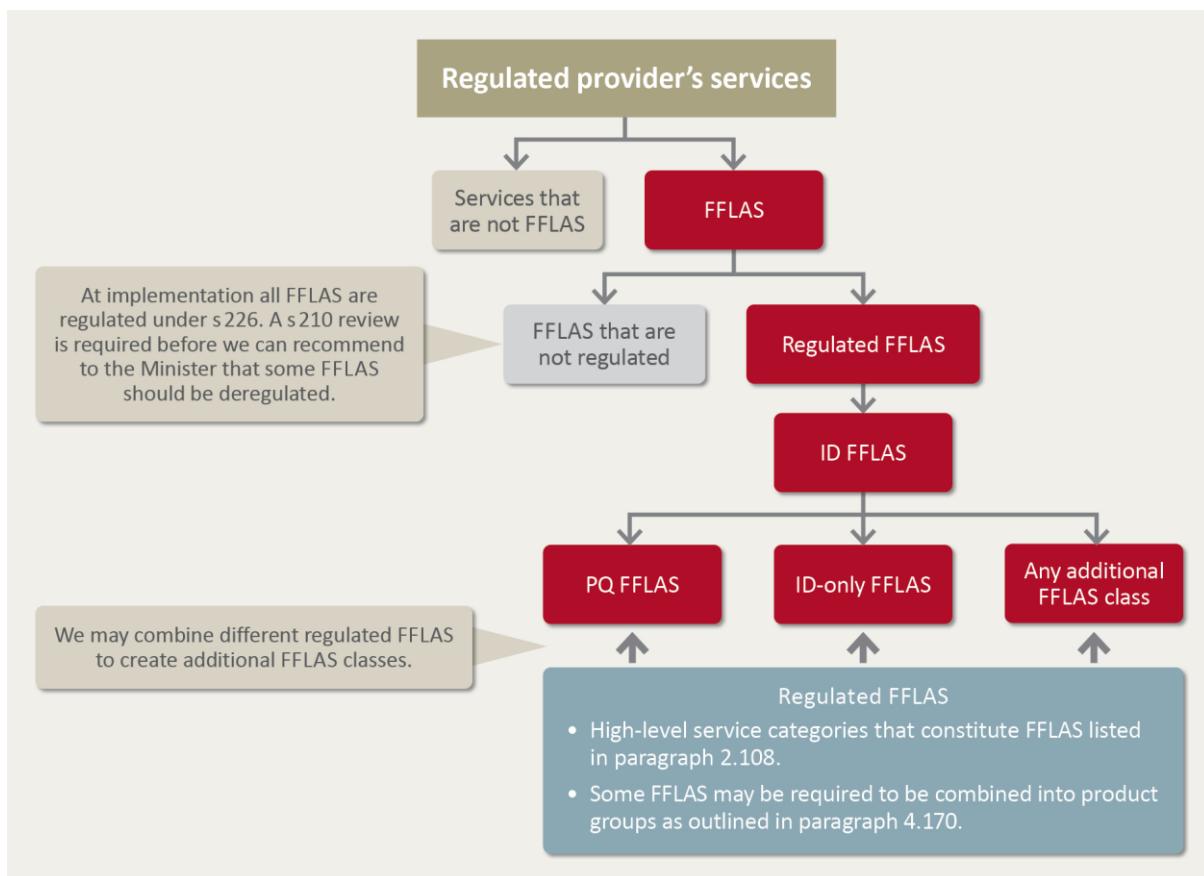
defined as “any and all FFLAS classes as the case may be and as the context requires”.

2.76 The FFLAS classes are as follows.

- 2.76.1 “ID FFLAS” means, in respect of a regulated provider, all FFLAS provided by that regulated provider that is subject to information disclosure regulation in regulations made under s 226 of the Act;
- 2.76.2 “PQ FFLAS” means, in respect of a regulated provider, all FFLAS provided by that regulated provider that is subject to price-quality regulation in regulations made under s 226 of the Act;
- 2.76.3 “ID-only FFLAS” means, in respect of a regulated provider that is subject to price-quality regulation in regulations made under s 226 of the Act, all FFLAS provided by that regulated provider that: (a) are subject to information disclosure regulation in regulations made under s 226; and (b) are not subject to price-quality regulation in regulations made under s 226; and
- 2.76.4 “Additional FFLAS class” means any class of FFLAS provided by a regulated provider as the Commission may from time to time specify for the purposes of Part 6 of the Act, where that class of FFLAS is a subset of and does not encompass all: (a) ID FFLAS; (b) PQ FFLAS; or (c) ID-only FFLAS.

2.77 Figure 2.3 illustrates how the FFLAS classes fit with other concepts related to regulated FFLAS used throughout this paper in explaining our final IM decisions.

Figure 2.3 Illustration of the relationship between different concepts related to regulated FFLAS



- 2.78 The IMs specify regulatory rules and requirements for the different FFLAS classes specified above. For example, the asset valuation IM prescribes specific methodologies for depreciation in respect of ID-only FFLAS.³³

Submissions on implementing reg 6

- 2.79 In our further consultation paper we provided our initial views on the interpretation of reg 6 as it related to setting the IMs.³⁴
- 2.80 Enable/Ultrafast and Chorus made submissions on our further consultation paper that covered a number of implementation aspects of the Regulations.³⁵ We will consider some of these submissions as part of our PQ and ID regulation work;

³³ Fibre Input Methodologies Determination 2020 (13 October 2020), clause 2.2.8.

³⁴ Commerce Commission “Fibre input methodologies – Further consultation draft – Reasons paper” (23 July 2020), Chapter 2: Updates to our regulatory framework.

³⁵ Enable and Ultrafast Fibre “Submission on Fibre IMs further consultation package” (14 August 2020), paragraphs 2.1-2.3; Chorus “Submission on Fibre IMs further consultation package” (14 August 2020), paragraph 7.

however, we address those aspects that are relevant to the implementation of reg 6 in the context of the IMs as follows.³⁶

- 2.81 Chorus submitted that it supports our approach for implementing the Regulations and considers our proposals are sensible.

2.81.1 It agrees with our view that geographically consistent pricing does not apply in areas where PQ regulation does not apply.³⁷

2.81.2 It has suggested that a potential issue arises regarding our interpretation of reg 6 and how it applies where the location of the end-user of FFLAS is not within an LFC's UFB area.³⁸

A potential issue arises from the Commission's expansive view of what constitutes FFLAS. For fibre access services it will be relatively straightforward to determine whether the location of the end-user premises or access point is within an LFC's UFB area. For other services which the Commission currently considers to be FFLAS the exercise may be less clear.

For instance, we would expect that any transport/backhaul services (which have no end-users and are not access services) within an LFC's UFB coverage area (eg, Chorus ICABs inside an LFC's coverage area) would be subject to ID only. Similarly a co-location service at a location inside an LFC's coverage area would be subject to ID only. It would not be workable to try to determine the location of end-users supported by transport, or co-location services. Even if it were possible, these services can support multiple end-users in different locations and could potentially result in services which are partly subject to PQ and partly subject to ID-only. This is not a practical outcome.

- 2.82 In response to Chorus' point, we consider our approach to the interpretation of reg 6 applies equally to FFLAS where there is an end-user within the LFC's UFB area, and to backhaul, transport and co-location FFLAS that fall outside the bounds of FFLAS to which an end-user can directly connect. The intended focus of reg 6 is on the location of the end-users who are the ultimate recipients of FFLAS. It follows that reg 6 is not confined to FFLAS that originate and terminate wholly within an LFC area.
- 2.83 For example, the question of whether PQ regulation applies to a co-location or transport service should depend on whether the service is used to support the provision of FFLAS to an end-user within an LFC's UFB geographical area, even if the

³⁶ The technical approach for implementing reg 6 will be prescribed as part of the PQ and ID regulation, rather than under the IMs.

³⁷ Chorus "Submission on Fibre IMs further consultation package" (14 August 2020), page 10, paragraph 10.

³⁸ Chorus "Submission on Fibre IMs further consultation package" (14 August 2020), page 10, paragraphs 8-9.

activity involved in the service, such as the transmission of signals on the transport network to a central office or POI, takes place (in part) outside that area.

Submissions on FFLAS classes

- 2.84 We explain FFLAS classes and how they apply to the IMs at paragraphs 2.75-2.78 above. We received submissions from Chorus on FFLAS classes in response to our further consultation paper.³⁹
- 2.84.1 Chorus agreed with our approach of categorising regulated FFLAS into FFLAS classes to give effect to the Regulations.
- 2.84.2 Chorus also agreed it is sensible to build flexibility into the IMs by allowing for further FFLAS classes and additional RABs in the future, if required, but said:⁴⁰
- [I]t is important to understand that an open-ended discretion to introduce additional granularity adds significant uncertainty and, if this discretion is not exercised cautiously, it could undermine the workability of the regime and the purpose of the IMs.
- 2.84.3 In its cross submission on the further consultation paper, Chorus noted it supported our decision not to impose further FFLAS classes until after the first regulatory period but if this changed in the future, a clear need should be identified, and the purpose should be outlined for workability and certainty.⁴¹
- 2.85 We acknowledge Chorus' submission. However, our view is that any further details on additional FFLAS classes are better left to the PQ or ID regulation process, since we will be making decisions on related issues which might give rise to the need for additional FFLAS classes when we determine PQ or ID regulation.
- 2.86 We note that we have not yet made a decision on whether to introduce additional FFLAS classes for the first regulatory period. No such intention was signalled in the further consultation paper where we first introduced the concept of FFLAS classes. In the event we intend to specify additional FFLAS classes during the PQ or ID determination process, we will set out our purposes and consult with interested parties.

³⁹ Chorus "Submission on Fibre IMs further consultation package" (14 August 2020), page 11. See also Chorus "Cross-submission on further consultation package" (4 September 2020), page 11.

⁴⁰ Chorus "Submission on Fibre IMs further consultation package" (14 August 2020), paragraph 12.

⁴¹ Chorus "Cross-submission on Fibre IMs further consultation package" (4 September 2020), paragraph 41.

Fibre fixed line access services

2.87 The concept of FFLAS, and regulated FFLAS, is central to setting the scope of our regulation under Part 6. The following paragraphs discuss this concept and list the service categories offered by Chorus and the other LFCs that we regard as comprising FFLAS.

Key definitions

2.88 “FFLAS” is defined in s 5 as follows:

- (a) means a telecommunications service that enables access to, and interconnection with, a regulated fibre service provider’s fibre network; but
- (b) does not include the following:
 - (i) a telecommunications service provided by a regulated fibre service provider (F) if the ultimate recipient of the service is F or a related party of F (as if the test for related parties were the same as the test in section 69U, applied with any necessary modifications);
 - (ii) a telecommunications service provided, in any part other than a part located within an end-user’s premises or building, over a copper line;
 - (iii) a telecommunications service used exclusively in connection with a service described in paragraph (ii);

2.89 In turn, “telecommunications service” is defined in s 5 as:

any goods, services, equipment, and facilities that enable or facilitate telecommunication.

2.90 “Telecommunication” is defined in s 5 as:

the conveyance by electromagnetic means from one device to another of any encrypted or non-encrypted sign, signal, impulse, writing, image, sound, instruction, information, or intelligence of any nature, whether for the information of any person using the device or not.

2.91 The definition of FFLAS in s 5 incorporates the broad definition of telecommunications service, which includes goods, services, equipment and facilities that both enable and facilitate telecommunication.

2.92 The definition of FFLAS is qualified by the requirement that the telecommunications service enables access to, and interconnection with, a regulated provider’s fibre network. Therefore, FFLAS are limited to services that relate to the fibre network of a regulated provider who is declared in regulations under s 226 to be subject to PQ or ID regulation, or both.

2.93 “Fibre network” is defined in s 5 as:

a network structure used to deliver telecommunications services over fibre media that connects the user-network interface (or equivalent facility) of an end-user's premises, building, or other access point to a regulated fibre service provider's fibre handover point.

- 2.94 A “fibre handover point” is an external network-to-network interface located at a specified POI for relevant end-users. We discuss POIs and the specification of POIs under s 231 below.

Defining FFLAS

- 2.95 In undertaking the task of defining FFLAS, we have considered whether FFLAS:

- 2.95.1 are confined to telecommunications, in the sense of the conveyance of telecommunication signals or information (as defined in s 5);
- 2.95.2 must be delivered directly over a network; and
- 2.95.3 are confined to services between the handover point and the end-user interface of a fibre network.

- 2.96 Each of these points is addressed in the paragraphs below.

- 2.97 As noted above, FFLAS are, under the definition in s 5, telecommunications services. In turn, telecommunications services are defined in s 5 to include services, equipment and facilities that enable or facilitate telecommunication. That is, the definition includes the conveyance of telecommunication signals or information, but also includes services and equipment that “enable or facilitate” telecommunication. This may include services that are not themselves the provision of telecommunication, such as co-location and maintenance services.
- 2.98 The definition does not restrict telecommunication services to those delivered directly over a network. For example, we consider that connection services such as design, pre-wiring, cable and duct fit-out to an end-user's premises, building or other access point, come within the concept of telecommunication services.
- 2.99 Fibre regulation is focussed on the regulated provider's fibre network (as defined in s 5); that is, the telecommunications network, located between the fibre handover point and the user-network interface. This is where services are generally not replicable and contestable, and where bottlenecks requiring regulation are most likely to occur.
- 2.100 However, the definition of FFLAS includes other services that “enable access to, or interconnection with”, a regulated provider's fibre network. These words in the definition of FFLAS are broad enough to potentially include services beyond the boundaries of the physical fibre network. For example, tie-cable and fibre jumper running services offered from a fibre handover point at a POI could also be FFLAS.

- 2.101 While we consider that FFLAS can potentially extend beyond the boundaries of the fibre network, we also consider the word “enable” in the definition of FFLAS to be narrower in scope than “enable or facilitate” used in the definition of telecommunications services in s 5. To that extent, FFLAS refers only to a subset of telecommunications services.
- 2.102 Transport services are throughput fibre services that aggregate and transport voice and data traffic across and between fibre networks. We received differing views on whether certain types of transport services, in particular, Intra Candidate Area Backhaul (**ICABS**), are FFLAS. We discuss submissions on transport services from paragraph 2.129 below.
- 2.103 Where a regulated provider supplies telecommunication services within the boundaries of its fibre network – for example, telecommunication transport services between network aggregation points, such as central offices, including central offices that are also POIs – we consider that those services are covered by the definition of FFLAS.
- 2.104 Consistent with our view that such transport services are intended to be within the definition of FFLAS, during Parliament’s consideration of the Telecommunications (New Regulatory Framework) Amendment Bill, the Departmental Report to the Select Committee stated the following:⁴²

It [the definition of FFLAS] is meant to cover telecommunications services that enable access to, and interconnection with, a regulated fibre service provider – including DFAS and backhaul services to mobile cell sites and fixed wireless sites.⁴³

the policy intent is to include services which extend past the point of aggregation within the FFLAS definition.⁴⁴

DFAS and Intra Candidate Area Backhaul (**ICABS**) are both FFLAS and will be subject to regulatory oversight under the new Part 6.⁴⁵

- 2.105 As matters currently stand, based on the types of services presently supplied by regulated providers, we do not think it is necessary or appropriate to include services beyond a regulated provider’s fibre network within the concept of FFLAS. However,

⁴² Telecommunications (New Regulatory Framework) Amendment Bill: Departmental Report to the Economic Development, Science and Innovation Committee – Initial Briefing (10 April 2018).

⁴³ Ibid, Appendix 2, page 2. Backhaul services such as ICABS are often purchased together with DFAS in order to transport traffic from the mobile cell site or fixed wireless access site back to a POI where the access seeker will connect to its network.

⁴⁴ Ibid, Appendix 2, page 11. The point of aggregation is a central office (including a central office which can also be a POI).

⁴⁵ Ibid, Appendix 2, page 20.

there are exceptions, such as certain co-location services at the POI that extend beyond the fibre handover point, but are necessary to enable access to, and interconnection with, the regulated provider's fibre network (for example, tie cable services).⁴⁶

What is included in FFLAS

- 2.106 While the s 226 regulations specify all FFLAS and certain geographic boundaries for PQ regulation, we must assume a role in determining how FFLAS applies to our IM, PQ and ID determinations, including enumerating the particular services that are regulated.
- 2.107 We are not required to reach a final view on what individual services come within the definition of FFLAS until we make our PQ and ID determinations under section 170. Nevertheless, we provide below an outline of our views.
- 2.108 In light of our approach to defining FFLAS in the preceding paragraphs, these are the service categories we consider qualify as FFLAS for the purposes of regulation under Part 6.
 - 2.108.1 **Voice services:** Services to enable the delivery of telephony and low speed data services over a fibre network (including, but not limited to, anchor services, baseband, ATA voice).
 - 2.108.2 **Bitstream PON services:** Single or multi-class point-to-multipoint fibre access services (including, but not limited to, anchor services, bitstream services, bitstream 2, 3, 3A, bitstream accelerate services, 10GPON, NGPON and multicast).
 - 2.108.3 **Unbundled PON services:** Point-to-multipoint layer 1 fibre access services (including, but not limited to, PON fibre access services (**PONFAS**) and unbundled fibre services).
 - 2.108.4 **Point-to-point services:** Single, multi-class or layer 1 point-to-point fibre access services (including, but not limited to, bitstream 4, enhanced bitstream 4, HSNS, BFAS and DFAS).

⁴⁶ As explained at paragraphs 2.163-2.177 below, the Commission specified POIs at the layer 2 handover points, and did not accept Chorus' argument that it should also specify layer 1 aggregation points as POIs. However, even if the Commission had also set POIs at the layer 1 aggregation points and this meant that the fibre network for layer 1 services terminated at these points, then ICABS would still, in the Commission's view, be within the definition of FFLAS as being necessary to enable access to, and interconnection with, the fibre network given that RSPs have invested at the layer 2 handover points as a result of the design of the UFB initiative. In this hypothetical scenario where layer 1 aggregation points defined the edge of a separate layer 1 fibre network, such transport services would have been added as a further exception to this list.

2.108.5 **Transport services:** Layer 1 or managed throughput fibre services provided over the fibre network, to transport voice and data traffic between central offices, including central offices that are also POIs (including, but not limited to ICABS, TES and inter-CO fibre services; but excluding national / inter-candidate area backhaul services such as Chorus Regional Transport).

2.108.6 **Co-location and interconnection services:** Network equipment accommodation and management services including network interconnection services (including, but not limited to, Central Office and POI Co-location services, handover connections, Ethernet handover connections, tie-cables and jumpering).

2.108.7 **Connection services:** Services to install and enable FFLAS between communal fibre network infrastructure and an end-user's premises, building or other access point (including, but not limited to, pre-wiring, cable and duct fit-out).

2.109 We do not exclude the possibility that other services might be included within FFLAS over time and will apply the statutory test in determining whether any given service is included within the definition.

Existence of FFLAS

2.110 FFLAS is used in a number of provisions in Part 6, including in s 177(2), which refers to the financial losses "incurred by the provider in providing fibre fixed line access services under the UFB initiative". The definition of FFLAS in s 5 refers to "a regulated fibre service provider's fibre network". In turn, under the definition in s 5, parties only become "regulated fibre service providers" once they are named in regulations made under s 226.

2.111 On a strict reading of these interconnected definitions, no regulated fibre service providers, and therefore no FFLAS, came into existence prior to the making of regulations under s 226 in November 2019. Such a reading of the definitions would mean that no FFLAS existed during much of the period of the UFB initiative, which would limit the application of s 177(2). Our view is that this narrower interpretation is incorrect, and that references to 'FFLAS' should be read broadly to refer to an underlying concept.

2.112 Under this underlying concept FFLAS would exist if the fibre network in respect of which the service is provided would have met the definition of 'fibre network' in s 5 if the provider in question had, at that time, been named in regulations under s 226 as subject to Part 6 regulation.

Submissions on FFLAS

2.113 We received submissions and cross-submissions on our proposed approach to interpreting the definition of FFLAS in the draft decision and in our further consultation paper.

Submissions on our draft decision

2.114 We set out the main submissions on our draft decision on the scope of FFLAS below.

2.115 Chorus generally agreed with our approach to defining FFLAS, but:⁴⁷

2.115.1 reiterated its earlier submission that we should have set the L1 aggregation points as POIs (in addition to setting the L2 handover points as POIs);

2.115.2 disagreed with our view that ICABS fell within the definition of FFLAS; and

2.115.3 disagreed with our preliminary view that network services and property development services fell within the definition of FFLAS, stating that:

2.115.3.1 the definition of “telecommunications service” in s 5 only captures a service involving telecommunication and not the activity of constructing the network;

2.115.3.2 if these services constituted FFLAS, then this would arguably mean that Chorus was in breach of its line of business restrictions in s 690;

2.115.3.3 it is unnecessary for these services to be regulated to capture the associated revenue, because the income earned by Chorus (in the form of capital contributions) will be subtracted before the cost of the corresponding assets enters the RAB; and

2.115.3.4 the inclusion of these services would be inconsistent with the Commission’s approach under Part 4.

⁴⁷ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), pages 16-21. See also L1 Capital “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 26.

2.116 Enable and Ultrafast:⁴⁸

- 2.116.1 agreed with our view that FFLAS included services provided beyond the physical boundaries of the fibre network, and included backhaul services such as ICABS;
- 2.116.2 expressed reservations in their primary submission on the draft decision about whether network services and property development services constituted FFLAS, because they may “support” but do not necessarily “enable” FFLAS, but recorded that they did not object to them being included since then all the LFCs’ services would constitute “regulated FFLAS” for the purpose of the cost allocation IM;
- 2.116.3 in their cross-submission on the draft decision, said that network services and property development services should be excluded because they did not represent an economic bottleneck; and
- 2.116.4 suggested that the criterion of whether services were “proximate” to the fibre network in defining FFLAS was too vague and unpredictable.

2.117 2degrees agreed with our approach, in particular to include ICABS.⁴⁹

- 2.118 Vector expressed concerns about the Commission “deferring” to Chorus in relation to the setting of handover points for L1 services because the way Chorus was pricing PONFAS required RSPs to purchase unnecessary inputs.⁵⁰
- 2.119 Spark (in its cross-submission on the draft decision) generally agreed with our approach, but suggested that the Commission might need to provide more guidance on where a service is FFLAS (eg, the NGA Tail Extension Service, or TES).⁵¹
- 2.120 A number of submitters (Chorus, LFCs, Vector) agreed that the Commission should focus on whether a particular service constituted an economic bottleneck.

⁴⁸ Enable Networks Ltd and Ultrafast Fibre Ltd “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 5; and Enable Networks Ltd and Ultrafast Fibre Ltd “Cross-submission on Fibre input methodologies draft decision” (18 February 2020), page 9.

⁴⁹ 2degrees “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 7.

⁵⁰ Vector Communications “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraphs 10-11. See also Vocus Group “Cross-submission on Fibre input methodologies draft decision” (18 February 2020), paragraph 6.

⁵¹ Spark “Cross-submission on Fibre input methodologies draft decision” (18 February 2020), page 3.

Submissions on our further consultation paper

2.121 We set out the main submissions on our further consultation paper in relation to the scope of FFLAS below.

2.122 Chorus welcomed our further elaboration of our views on which services constitute FFLAS and agreed with most of the services we describe as FFLAS. While Chorus supported our view that network services do not fall within the definition of FFLAS, it:⁵²

2.122.1 referred back to its submissions on the draft decision explaining why ICABS are outside the statutory definition of FFLAS; and

2.122.2 disagreed with our preliminary view that property development services fell within the definition of FFLAS, stating that:

2.122.2.1 the construction of new network assets is different to the provision of FFLAS to RSPs;

2.122.2.2 these services have never been regulated in New Zealand;

2.122.2.3 our approach did not align with policy development or the legislative process for Part 6;

2.122.2.4 our view is not consistent with the Act and there is no contextual information or coherent policy argument to depart from the Act;

2.122.2.5 the Commission has other regulatory mechanisms to address concerns, like the Commerce Act and oversight of opex and capex; and

2.122.2.6 in its cross-submission, said it agreed with Vodafone's statement that property development services are an optional add-on service that could be performed by a number of service providers.

2.123 Enable and Ultrafast:⁵³

2.123.1 agreed with the inclusion of ICABS in the definition of FFLAS;

⁵² Chorus "Submission on Fibre IMs further consultation package" (14 August 2020), pages 5 and 11-12. See also Chorus "Cross-submission on further consultation package" (4 September 2020), pages 2 and 11.

⁵³ Enable and Ultrafast Fibre "Submission on Fibre IMs further consultation package" (14 August 2020), pages 2-3.

- 2.123.2 did not see a distinction between property development services and network services and said neither fall within the definition of FFLAS;
- 2.123.3 said “The Act requires a two part test to be applied: (a) does the service enable or facilitate the conveyance by electromagnetic means of signs, signals, etc; and (b) if yes, does the service enable access to or interconnection with the fibre network”; and
- 2.123.4 in applying the two part test directly above, said “neither property development services nor network services enable (“make possible”) access to or interconnection with the fibre network, they do not fall within the subset of telecommunications services that comprise FFLAS”.
- 2.124 Spark supported our further guidance on the definition of FFLAS, including the treatment of transport services such as ICABS, and said we should be open to providing further guidance over time as the regulatory framework is implemented. Spark also:⁵⁴
- 2.124.1 recommended we clarify that where a “site investigation” is requested as a precursor to a fibre connection, it should be considered connection activity for FFLAS purposes; and
- 2.124.2 considered network services do relate to the operation of the fibre network (but may not be a specific component of an access service purchased by access seekers) and need to be reflected in the regulatory framework.
- 2.125 Vodafone appreciated the additional clarity we provided on the scope of regulated FFLAS. Vodafone:⁵⁵
- 2.125.1 supported the confirmation that ICABS is included within the regime;
- 2.125.2 expressed concerns that ‘network services’ were proposed to be excluded from the regime saying often the only provider that can carry out these services is the LFC themselves, so they are a bottleneck service that has the potential to be exploited; and
- 2.125.3 said network services are fundamentally different to property development services, which are an optional add-on service that could be performed by a number of service providers.

⁵⁴ Spark “Submission on Fibre IMs further consultation package” (14 August 2020), pages 3-4.

⁵⁵ Vodafone “Submission on Fibre IMs further consultation package” (14 August 2020), page 5.

- 2.126 2degrees welcomed our further clarification to industry that ICABS are part of FFLAS. 2degrees also said we had not explained how we reached the view that network services do not qualify as FFLAS and expressed its view that network services are services that Chorus needs to use to provide telecommunications services.⁵⁶ Further in its cross-submission it agreed with Spark and Vodafone that network services need to be reflected in the regulatory framework.⁵⁷
- 2.127 Vector considered it appropriate that we have not excluded the possibility that other services might be included within FFLAS over time.⁵⁸
- 2.128 In submissions on the scope of FFLAS, Spark and 2degrees also made points about third party revenues and costs and related party transactions. We have not addressed these points, as they do not directly relate to what is, and what is not, within the scope of FFLAS.

Transport services

- 2.129 We described transport services at paragraph 2.102 above and explained that we consider ICABS to be a particular type of transport service that is a FFLAS.
- 2.130 In its submission on the draft decision, Chorus argued that transport services, in particular ICABS, do not fall within the scope of FFLAS.⁵⁹ Chorus re-stated its position in its submission on our further consultation.⁶⁰
- 2.131 We disagree with Chorus and, as set out from paragraph 2.102 above, consider that some transport services, and in particular ICABS, do fall within the scope of FFLAS. ICABS is a bottleneck service that is often used by access seekers purchasing layer 1 services, such as mobile network operators purchasing DFAS, or unbundlers who are beginning to purchase PONFAS.⁶¹ These access seekers usually require ICABS or an equivalent service to transport voice and data traffic between central offices, most often from a central office to the POI.
- 2.132 On 19 December 2019, we specified POIs at the layer 2 handover points based on the POIs under the UFB initiative.⁶² In our final reasons paper we said a feature of the UFB architecture was for a single POI per candidate area and noted it was a

⁵⁶ 2degrees “Submission on Fibre IMs further consultation package” (14 August 2020), pages 2-4.

⁵⁷ 2degrees “Cross-submission on further consultation package” (4 September 2020), page 5.

⁵⁸ Vector “Submission on Fibre IMs further consultation package” (14 August 2020), pages 2-3.

⁵⁹ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraphs 38-46.

⁶⁰ Chorus “Submission on Fibre IMs further consultation package” (14 August 2020), paragraph 17.

⁶¹ Under the Fibre Deeds, LFCs were required to offer PONFAS on an equivalent and non-discriminatory basis from 1 January 2020.

⁶² Commerce Commission “Specified points of interconnection – reasons paper” (19 December 2019).

requirement that every end-user within a UFB candidate area must be accessible by an RSP from a single POI.⁶³ Accordingly, most access seekers invest in equipment, co-location and backhaul at the POIs. For many access seekers of layer 1 services (such as DFAS and PONFAS) ICABS will be an essential service to transport these services from the central office to the POIs. In our section 9A backhaul study,⁶⁴ we found that Chorus did not face competition for the supply of intra-regional backhaul by other network operators at approximately 90% of all exchanges where it offers ICABS.

Property development services

- 2.133 In our draft decision, we considered that all property development services are FFLAS. This included all network deployments and expansions, including connections to end-user premises, and installation activities.
- 2.134 As set out above, Chorus submitted that property development services should be excluded from the definition of FFLAS. Chorus said the inclusion of these services would make the boundaries of the regulated service definition vague and unpredictable.⁶⁵ Enable and Ultrafast agreed with Chorus.⁶⁶
- 2.135 Our final position distinguishes between property development services that relate to deployment and expansion of communal infrastructure, and connection services which relate to a specific end-user's premises, building or other access point.
- 2.136 Our view is that property development services that relate to the deployment and expansion of communal infrastructure (eg, up to the premises boundary of each lot in the case of a subdivision) are outside the scope of FFLAS.
- 2.137 These types of services are provided to property developers who require developments, such as subdivisions, to be reticulated. They do not involve the actual connection of end-user premises, buildings or other access points to the fibre network. From this perspective, the property development services are no different to any other communal infrastructure expansion that Chorus undertakes, except that they are provided at a time and at a specific location requested by a developer, and currently there is a variable service charge to developers for this expansion, classified as a capital contribution. For property development services related to

⁶³ Ibid, paragraphs 29 and 30. See also Commerce Commission “Fibre input methodologies – Draft decision paper” (19 November 2019), paragraph 2.82.

⁶⁴ Commerce Commission “Section 9A Backhaul services study – our findings” (11 June 2019).

⁶⁵ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 20.

⁶⁶ Enable and Ultrafast Fibre “Cross-submission on Fibre input methodologies draft decision” (18 February 2020), page 9; and Enable and Ultrafast Fibre “Submission on Fibre IMs further consultation package” (14 August 2020), page 3.

communal infrastructure, we consider that there is insufficient proximity to come within the definition of FFLAS.

- 2.138 To the extent that property development services result in new communal infrastructure for FFLAS, the costs of providing these services represent costs of providing FFLAS once the assets are commissioned and available for use. Therefore, the value of the assets would enter the RAB, net of any capital contributions that the LFCs have received for the provision of property development services (and subject to the rules set in the asset valuation IM). If the assets commissioned following the provision of property development services are used to provide both regulated FFLAS and services that are not regulated FFLAS, the rules specified in the cost allocation IM will also apply before any assets enter the RAB. Further, if the costs incurred in the provision of property development services involve opex shared with regulated FFLAS, the cost allocation IM will apply.

Connection services

- 2.139 In contrast, our position is that connection services come within the scope of FFLAS where they are provided between the communal infrastructure (eg, the premise boundary) and an end-user's premises, building, or other access point. This includes standard and non-standard connections, and is irrespective of whether the service is provided to a home owner, RSP, property developer or other third party. We expect that connection services will include all work to provide new fibre (including associated infrastructure and equipment such as ducts to, and an optical network terminal (**ONT**) in, a premises, if relevant). However, the exact nature of services that will be considered connection services, and therefore FFLAS, will be determined as part of the PQ determination (as will the other FFLAS listed in the high-level categories at paragraph 2.108 above).
- 2.140 Consistent with paragraphs 2.136-2.137 above, we do not think it is necessary or appropriate to include services beyond a regulated provider's fibre network at the end-user premises, building or other access point, in the scope of FFLAS. For example, in-home wiring services, where that wiring does not form part of the regulated provider's fibre network.
- 2.141 In its submission on our further consultation paper, Spark said we should clarify whether site investigation activities relating to proposed connection to the fibre network is a component of FFLAS. It said:⁶⁷

Access seekers can request a site investigation (typically for business customers) to obtain information about the infrastructure or services available at an address, and this information would typically be used to inform a customer's connection options to the network.

⁶⁷ Spark "Submission on Fibre IMs further consultation package" (14 August 2020), page 4.

- 2.142 We have considered Spark’s submission. However, our final view is to exclude planning and investigation activities (whether for sub-division activities or as a precursor to a FFLAS connection at a premise, building or other access point) because these services are not sufficiently proximate to satisfy the test for FFLAS under s 5. Further, for these types of services, there is no certainty that a connection will be made and, in our view, the definition of FFLAS is only engaged when physical work has begun to enable a connection at an end-user’s premises, building or other access point.
- 2.143 We note that connection services, as all other FFLAS, will fall under the quality dimensions set by the quality IM and any resulting quality performance measures and standards set as part of PQ and ID regulation. Any charges levied for these services, such as non-standard installation charges, will be subject to PQ requirements (included in the allowable revenues) and subject to geographically consistent pricing obligations under s 201.
- 2.144 In its cross submission on our further consultation paper, Chorus agreed with Vodafone that property development services are an optional add-on service that could be performed by a number of alternative service providers.⁶⁸
- 2.145 In the case of connections, we recognise that some of the work may be carried out separately from the regulated provider. For example, in some cases, a regulated provider permits third parties to install infrastructure provided by the regulated provider in accordance with the regulated provider’s requirements (eg, dig the trench to lay the cable and infrastructure). However, certain aspects of connection services to an end-user premises must be provided by or under the control of the regulated provider, such as the infrastructure itself (ducts, sub-ducts, and fibre) along with provisioning the fibre and making the network connection at the network termination point at the end-user’s premises, building, or other access point. Accordingly, as set out above, we consider that connection services provided by the regulated provider between the communal network and an end-user’s premises, building, or other access point are FFLAS.
- 2.146 Submitters have raised concerns about the potential use of market power by regulated providers in relation to property development services (and network services, discussed below). Although the scope of our investigative powers under Part 6 is limited by the definition of FFLAS, we note that we have powers outside of Part 6 which we can use to keep any market power in check. These powers include investigations under Schedule 3 of the Act (provided the requirements of Schedule 3 are met) and s 9A inquiries, reviews and studies.⁶⁹

⁶⁸ Chorus “Cross-submission on further consultation package” (4 September 2020), page 11.

⁶⁹ See clauses 1 and 8 of Schedule 3.

Network services

- 2.147 In our draft decision, we included in the preliminary list of FFLAS (at paragraph 2.63.7) a category entitled “network services”, which we described as “Network engineering and other services provided for a fibre network (including, but not limited to, network design build and maintenance services)”. Examples of these services would include fibre route surveys, cable locate services, site investigation services and network damage maintenance.
- 2.148 In our further consultation paper, we reached a view that these services do not qualify as FFLAS. We said these services are not generally associated with a particular property and largely consist of charges to third parties in connection with work near, or damage to, Chorus network infrastructure.
- 2.149 Network services do not enable access to or interconnection with a regulated provider’s fibre network. In all cases network services are required for the access seeker’s own purposes, usually so that it does not cause damage to the network provider’s infrastructure while carrying out its own works.
- 2.150 In its submission on the further consultation paper, Vodafone says “as we begin to roll out more dense mobile networks we will need to get ‘network services’ from the LFCs to ensure that any backhaul we roll out does not damage their network. They could use the ‘network services’ charge to create a cost barrier to making these investments.”⁷⁰ In this case, Vodafone does not require the network service for interconnection with an LFC’s network, it requires the service so as not to cause damage to an LFC network as it builds its own mobile telecommunications network. This does not satisfy the test for FFLAS under s 5.
- 2.151 Further, we would expect relevant parties to be able to reach agreement as to the provision of the type of network services that Vodafone discusses. It is in the access seeker’s interest to request network services so as not to cause damage to other utilities. Equally, it is in a regulated provider’s interest to provide the service in a timely manner and at a reasonable cost for the access seeker to take it up, as it avoids potential damage to its network if the access seeker were not to do so.
- 2.152 We acknowledge 2degrees’ submission in agreement with Spark and Vodafone that network services need to be reflected in the regulatory framework.⁷¹ However, we have not changed our view that network services do not qualify as FFLAS. They do not enable access to, and interconnection with, a regulated fibre service provider’s fibre network.

⁷⁰ Vodafone “Submission on Fibre IMs further consultation package” (14 August 2020), page 5.

⁷¹ 2degrees “Cross-submission on further consultation package” (4 September 2020), page 4.

Exclusions

- 2.153 The definition of FFLAS in s 5 expressly excludes certain telecommunications services. These exclusions can be placed in two general categories discussed below.

Ultimate recipient

- 2.154 First, FFLAS does not include a telecommunications service provided by a regulated provider if it, or a related party, is the ultimate recipient of the telecommunications service. The ultimate recipient is the actual end customer (in most cases, this will be an end-user).
- 2.155 We consider there will be very few cases where a regulated provider, or a related party, would be the ultimate recipient of the service. An example would be where the regulated provider, or a related party, is the ultimate recipient of telecommunications services for the purposes of Supervisory Control and Data Acquisition networks (**SCADA**).

Copper-based telecommunications services

- 2.156 Second, the definition of FFLAS excludes a telecommunications service provided, in any part other than a part located within an end-user's premises or building, over a copper line or any telecommunications service used exclusively in connection with the same.
- 2.157 An example of a telecommunications service provided over a copper line is a VDSL or ADSL based service, where the final segment of the network from the street cabinet to the end-user's premises or building is a copper-based service.
- 2.158 Also, as expressly set out in the definition of FFLAS, the exclusion of copper-based services is not concerned with the part of a telecommunications service located within an end-user's premises or building. This means that the type or condition of an end-user's home wiring is not relevant to this exclusion in FFLAS.
- 2.159 Copper-based telecommunications services will continue to be regulated under Parts 2 and 2AA of the Act.

Business line restrictions

- 2.160 Chorus is subject to line of business restrictions under both the Act and the Fibre Deeds, which prohibit it from participating in the supply of certain retail services, services above layer 2, and end-to-end services.⁷²
- 2.161 Section 69SA allows us to grant exemptions from the restriction on layer 2 services and end-to-end services with effect from the implementation date, meaning Chorus

⁷² Sections 69O, 69R and 69S.

could potentially provide additional services above layer 2 (for example, home routers, or content management or distribution services). Where services that are the subject of these exemptions meet the definitions and criteria for regulated FFLAS, they will be subject to Part 6 regulation.

- 2.162 The other LFCs have certain line of business restrictions in their respective company constitutions and the Fibre Deeds.

Specified points of interconnection

POIs

- 2.163 The specification of POIs prescribes the outermost boundaries of a regulated provider's fibre network (with the other end being the user-network interface) and establishes the fibre handover points for the network.

- 2.164 “Fibre handover point” is defined in s 5 as:

the external network-to-network interface (or equivalent facility) located at the specified point of interconnection for the relevant end-user's premises, building, or other access point that enables access to, and interconnection with, a regulated fibre service provider's fibre network.

- 2.165 The specified POIs are where access seekers may locate their network routers, ethernet switches, backhaul facilities and equipment in order to gain access to FFLAS and provide services to end-users. The fibre handover points at the POIs are typically for layer 2 services.

- 2.166 POIs are similar to, but can be differentiated from, network aggregation points. POIs are where the regulated provider's network interfaces with an access seeker's own network and is the point where layer 2 FFLAS traffic is exchanged between the two networks. We explain POIs in more detail below.

- 2.167 Unlike POIs, network aggregation points are the centre points in the regulated fibre provider's fibre network where fibre cables are brought together and where FFLAS traffic can be concentrated and then exchanged (transported) between other points within the greater fibre network. Network aggregation points, like central offices, are connection points within the fibre network, located closer to the end-user premises, building or other access point. A central office may be a cabinet or a building and is often a point where regulated providers offer unbundled layer 1 services such as DFAS, and intra network backhaul services, such as ICABS.

What POIs do

- 2.168 As discussed at paragraph 2.163 above, the POI is where the fibre handover point is located on the regulated provider's fibre network, which is what access seekers interconnect with.

- 2.169 POIs therefore play a central role in determining the availability of FFLAS for regulation under s 226, which in turn underpins the scope of regulated FFLAS.
- 2.170 POIs are also necessary for declaring SFAs. SFAs are geographic areas in which a specified fibre service – mainly FFLAS – is available to end-users. The main implication of declaring an SFA is that certain wholesale copper services cease to be designated access services. Because POIs establish fibre handover points and define the upstream boundary of a fibre network, POIs must be in effect for FFLAS, and in turn a specified fibre service, to exist.
- 2.171 We were required to specify POIs before we carried out our first assessment of specified fibre areas,⁷³ which was completed and published in December 2019.⁷⁴ We will complete our second assessment this year.

Specified POIs under s 231

- 2.172 As set out in s 231, the Commission may, by public notice, prescribe POIs for the purposes of establishing fibre handover points. Section 231(5) states the first notice must prescribe POIs based on the POIs that apply at the close of 31 December 2019 under the UFB initiative, although the notice can also include additional POIs. Under s 231(4) a specified POI must not be amended unless the amendment is for an appropriate technical purpose and is consistent with the purpose stated in s 162.
- 2.173 The Commission gave notice of the first specified POIs on 19 December 2019 (**first specified POI notice**).⁷⁵
- 2.174 In our view, s 231(5) supports specifying POIs at layer 2 handover points, as described above. A key feature of the UFB initiative architecture is the concept of a single POI per candidate area.⁷⁶ This is also consistent with the UFB contracts that make a distinction between layer 2 handover points, which are called POIs, and layer 1 handover points, which are referred to as being located at a central office (which is not a POI).⁷⁷

⁷³ Section 69AB(1).

⁷⁴ Commerce Commission “Specified points of interconnection – reasons paper” (19 December 2019).

⁷⁵ Commerce Commission “Specified points of interconnection – reasons paper” (19 December 2019).

⁷⁶ We note that in some candidate areas there are two POIs because of the number of end-users in the area. Under UFB architecture, all end-users in these areas are accessible to access seekers from either of the two POIs.

⁷⁷ Network Infrastructure Project Agreement between Chorus and Crown Infrastructure Partners, 24 May 2011, definition of POI at Schedule 1.

2.175 Our view that only layer 2 handover points should be specified as POIs is supported by the Economic Development, Science and Innovation Select Committee report on the Bill, which stated:⁷⁸

POIs are the places where the retail service provider's network connects to the wholesale fibre provider's network. A feature of the Ultra-fast Broadband (UFB) architecture is a single POI per candidate area, driving competition and supporting open access.

2.176 For these reasons, specified POIs, including their function and location at the layer 2 handover point of the fibre network described above, are central to identifying and specifying FFLAS available for regulation under s 226. They may be amended in future, but only for an appropriate technical purpose.⁷⁹

Submissions on specified POIs

2.177 Chorus submitted on our draft decision that POIs should be specified at both the layer 2 POIs and the layer 1 aggregation points.⁸⁰ For the reasons given in our first specified POI notice and as set out above, we do not consider that specifying POIs at the layer 1 aggregation points on the network is consistent with the words of the Act.

How we apply the regulation over time

2.178 We are aware that there are some issues that are likely to arise over time, which may impact how we apply the IMs. These include the following topics:

- 2.178.1 dynamic aspects of Part 6 regulation (including deregulation);
- 2.178.2 the need for a wash-up mechanism for maximum revenues; and
- 2.178.3 the need to smooth revenues/prices.

⁷⁸ Economic Development, Science and Innovation Committee, Report on the Telecommunications (New Regulatory Framework) Amendment Bill (4 May 2018), page 6. As we explain in our specified POIs decision, we agree with Chorus that the “single POI per candidate area” requirement does not mean that Chorus or the LFCs cannot establish another POI in a candidate area, but means that each POI must be capable of serving any end-user within that candidate area. But in most cases there will only be one POI (layer 2 handover point) in each candidate area, and the Select Committee’s comment suggests that it contemplated only layer 2 handover points being specified as POIs.

⁷⁹ At the same time, for the reasons given above at paragraphs 2.95-2.105, we consider that services provided beyond the physical boundaries of the network (including past the specified POI) may qualify as FFLAS where they are necessary to enable access to, or interconnection with, the fibre network.

⁸⁰ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 40. See also Chorus “Fibre emerging views submission” (18 July 2019), paragraphs 77-78.

Dynamic aspects of Part 6 regulation (including deregulation)

- 2.179 There are three main ways in which we consider Part 6 regulation has a dynamic quality.
- 2.180 First, the technology associated with fibre services (and telecommunications service more generally) continues to develop. In some cases, older technology (such as copper) will be phased out and new technologies (such as fixed wireless access (FWA)) may play an increasing role. It follows that the market for telecommunications services itself is dynamic, and more so than other sectors where utility-style regulation has been imposed (such as electricity lines services).
- 2.181 Second, we are conscious that Part 6 regulation will impact on the commercial decisions of regulated providers, particularly Chorus. For example, it may impact on its new infrastructure build, the rate at which its legacy copper network is decommissioned, and its ability to respond to competition from other technologies. We will continue to monitor how the regime applies to changing market conditions and make adjustments as required.
- 2.182 Third, the regulatory boundary is expected to change over time. For example, new or amended regulations under s 226 may vary the scope of regulated FFLAS through regulation and/or deregulation. Regulation and/or deregulation may also vary the RAB for both PQ and ID regulation. This is a necessary and appropriate feature of Part 6, which recognises the dynamic nature of telecommunications markets.
- 2.183 As noted above, other than for the first regulatory period, s 226 regulations can only be made on the recommendation of the Commission.
- 2.184 One avenue by which we may make such a recommendation is through a deregulation review under s 210. After the implementation date, under section 210(1), we may review whether one or more FFLAS should no longer be subject to PQ regulation or no longer be regulated under Part 6 entirely. This may be with reference to geographic region, end-users, access seekers, technical specifications, or any other circumstances in which the service is provided.⁸¹
- 2.185 Following a deregulation review we must make a recommendation to the Minister, who then can recommend to the Governor-General that services be excluded from regulation by way of new s 226 regulations.
- 2.186 The regulatory boundary may also change over time through other processes: for example, where regulations under s 226 define regulated FFLAS in a way that can

⁸¹ Sections 210(4) and 226(3).

change over time, or where new services are regulated following the process in Schedule 3 to the Act.

2.187 The ability for the scope of regulated FFLAS to vary over time will have implications for PQ and ID regulation, and we have considered this in reaching our final IM decisions. Two examples of this are as follows.

2.187.1 The asset valuation IM addresses how assets used to provide regulated FFLAS are accounted for and brought into or taken out of the RAB to give effect to changes in the scope of regulated FFLAS from time to time.

2.187.2 The cost allocation IM addresses how costs are shared between regulated FFLAS and services that are not regulated FFLAS. Any variations in what services are regulated may impact the applicability of the cost allocation rules.

2.188 We have included a “change event” re-opener provision in our regulatory processes and rules IM. This sets out that we may reconsider and amend a regulated provider’s PQ-path if we are satisfied that there has been change in a regulatory requirement arising from new or amended legislation, and that certain other conditions have been met. A change in the scope of regulated FFLAS brought about by a law change may trigger such a re-opener provision.

The need for a wash-up mechanism for maximum revenues

2.189 When the Commission determines the second PQ path, we will be required to apply a wash-up mechanism that provides for any over-recovery or under-recovery of revenues by the regulated provider in the previous regulatory period. This is set out in s 196.⁸²

2.190 Factors we need to account for within the wash-up mechanism may change period-to-period. Therefore, the need and form of any wash-up mechanism is likely to vary over time, as the over-recovery and under-recovery of revenues of the regulated provider varies. Our final decision on the wash-up mechanism is discussed at paragraphs 9.29-9.32 in the regulatory processes and rules IM.

The need to smooth revenues/prices

2.191 When the Commission determines a PQ path, we can choose to smooth prices or revenues over multiple regulatory periods. Section 197 sets out that we can do this if

⁸² Note that s 196(3) sets out that we must apply a wash-up mechanism for every regulatory period (except the first) that starts before the ‘reset date’. The process for the Governor-General to declare a reset date is set out in s 225.

we think it necessary or desirable to minimise any undue financial hardship to a regulated provider or to minimise price shocks to end-users.

- 2.192 The need and form of any revenue/price smoothing is likely to vary over time, depending on our assessment of potential financial hardship to regulated providers and price shocks to end-users. Our final decision on revenue/price smoothing is discussed at paragraphs 9.29-9.33 in the regulatory processes and rules IM.

Relevance and application of Part 4

- 2.193 In implementing the new regulatory framework, we must give effect to the language used by Parliament in the Act. The meaning of a statute must be ascertained from its text and in light of its purpose.⁸³
- 2.194 We note that Parliament made a deliberate decision to base the regulatory model in Part 6 on the existing model in Part 4. Some of the key provisions in Part 6, including the purpose statement in s 162, are based on corresponding provisions in Part 4.
- 2.195 We must always consider the specific characteristics of the telecommunications market and respect the particular structure and language of Part 6. Nevertheless, to develop and implement the new regulatory regime for Part 6, in addition to our experience of telecommunications regulation, we are able to draw on our experience of regulation under Part 4.
- 2.196 The High Court's detailed examination of IMs for regulation of electricity distribution and transmission, gas pipelines and airports in the merits appeal of our December 2010 Part 4 IMs determinations (**Part 4 IM merits appeal**) also assists us to understand the purposes, functions and operation of the regulatory tools in Part 6.⁸⁴
- 2.197 There are important similarities between Part 6 and Part 4.
- 2.197.1 Both regimes acknowledge that where there is little or no competition and little or no likelihood of competition it may not be possible to effectively promote competition for the long-term benefit of consumers or end-users. Accordingly, both Part 6 and Part 4 are designed to enable the use of regulation to promote outcomes that are consistent with those characteristics of workably competitive markets. This is reflected in the purpose statements in s 162 of the Act and s 52A of the Commerce Act.
- 2.197.2 To give effect to the s 162 purpose, Parliament has introduced two key tools into Part 6: ID regulation and PQ regulation. These are also two of

⁸³ Interpretation Act 1999, s 5; *Commerce Commission v Fonterra Co-operative Group Ltd* [2007] NZSC 36, [2007] 3 NZLR 767.

⁸⁴ *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289.

the key regulatory tools used in Part 4 (although ID regulation relating to fibre is already used in a different form under subpart 3 of Part 4AA of the Act). Both regulatory tools are supported by IMs.

- 2.197.3 Both the Part 6 and Part 4 legislative frameworks leave considerable scope for the Commission to develop the regulatory regime. In Part 4, the Commission decided to implement PQ paths and ID regulations through a BBM approach. This is an orthodox approach for these forms of regulation and was not challenged before the High Court. It does not follow, however, that we are required to adopt this approach under Part 6 or that we should automatically do so. As discussed from paragraph 2.20 above, we have considered this question independently and come to the view that a BBM approach is appropriate in Part 6 as well.
- 2.198 On the other hand, there are important differences between the two regulatory regimes.
- 2.198.1 As noted above, the technological and market context in which the regimes are applied is different, with the market for fibre services and telecommunications services generally being more dynamic than some of the markets regulated under Part 4.
- 2.198.2 Section 166(2) provides that when we make a recommendation, determination or decision, we must give effect to the purpose in s 162 and:
- to the extent that [we] consider it relevant, to the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services.
- 2.198.3 The language of this requirement is based on s 18.⁸⁵ Compared to Part 4, it expands the matters that we must consider in two ways. First, it requires us to consider the promotion of competition in markets for telecommunications services generally (not just markets for FFLAS). This means that we could, where we consider it relevant, consider the impact of a decision on the promotion of competition in markets for copper, wireless or retail services. Second, it means that we are also directed to consider the direct promotion of competition in some circumstances, rather than focusing exclusively on the promotion of outcomes consistent

⁸⁵ The difference being that 'competition' is replaced with 'workable competition', as s 18 states that the purpose of Part 2 and Schedules 1 to 3 of the Act is "to promote competition in telecommunications markets for the long-term benefit of end-users of telecommunications service ...". We discuss the concept of workable competition below.

with those seen in competitive markets through incentive-based regulation.

- 2.198.4 The focus of Part 4 regulation is on “consumers”, who are referred to in the section 52A purpose statement. By contrast, the focus of Part 6 is on “end-users in markets for fibre fixed line access services”. There are differences between these definitions: in particular, the definition of “consumer” in Part 4 captures intermediate acquirers (such as retailers), whereas the definition of “end-user” is confined to the ultimate recipient of a service.
- 2.198.5 Part 6 also contains specific statutory requirements we must comply with in implementing the regulatory regime. For example, when setting the IMs, we have to act within the parameters of s 177 which contains rules relating to determining the initial value of fibre assets.
- 2.198.6 Part 6 includes provision for regulations to be made prescribing an anchor service. Anchor services are wholesale services that are intended to ensure that voice and basic broadband services are provided at reasonable prices and to specific quality standards, and to act as an appropriate constraint on the price and quality of other FFLAS. Any regulated provider subject to PQ regulation must offer an anchor service once the anchor service has been prescribed in regulations. The Part 6 framework also provides for DFAS and unbundled fibre services to be specified in specific regulations. Anchor services, DFAS and unbundled fibre service regulations are a unique regulatory tool to Part 6 and we do not have a directly comparable regulatory tool from Part 4 to draw on.
- 2.198.7 Part 6 also recognises that the scope of regulation, including regulated FFLAS, may change as the competitive environment evolves. Subpart 7 provides for reviews to be conducted of various aspects of the regulatory framework, including whether FFLAS should be deregulated. These reviews may recommend changes to the scope of regulated FFLAS over time.
- 2.199 We must apply the regulatory framework established by Part 6. Where judgements are required, we must make those judgements independently by reference to the purpose statements in the Act. We cannot simply import the approach we have adopted under Part 4.
- 2.200 At the same time, we recognise that Parliament made a deliberate decision to base important aspects of the Part 6 framework on the existing regulatory framework in Part 4. We can use our experience in applying Part 4 to inform our application of Part 6, taking into account the courts’ analysis of those provisions to the extent that it is relevant to the new regime.

Submissions on the relevance and application of Part 4

- 2.201 Our position on the relevance and application of Part 4 remains unchanged from the view we expressed in our draft decision. However, we have provided further detail to explain the important differences between the Part 4 and Part 6 regulatory regimes, focussing on the dynamic nature of the Part 6 regime.
- 2.202 We received submissions and cross-submissions on our draft decision from stakeholders, discussed below.
- 2.202.1 Vocus considered the Commission had deviated too much from the Part 4 IMs precedent on matters that are not industry or legislative specific, and in its view, the Commission has erred towards principles-based IMs, which are much less prescriptive than the Part 4 IMs. Vocus also expressed concern over a substantive number of important elements the IMs are silent on.⁸⁶
 - 2.202.2 2degrees submitted that the Commission should undertake a clause-by-clause review of new Part 6 IMs, versus Part 4 IMs to ensure that there are no inappropriate gaps or omissions in the Part 6 IMs and that there is justification for all key differences.⁸⁷
 - 2.202.3 Vocus and 2degrees also noted that the IMs do not address related party transactions in the same manner as in the Part 4 IMs.⁸⁸ Vocus says it is “uncomfortable the Commission has not followed Part 4 precedent and specified Related Party Transactions in relation to the sale of goods and services are capped at a value no greater than if that transaction had the terms of an arm’s-length transaction.”⁸⁹
 - 2.202.4 Chorus agreed with the Commission that Parliament deliberately based the regulatory model in Part 6 on the existing model in Part 4 but also noted key differences for the Part 6 regime, including a single network, differentiated regulated services, construction ahead of demand,

⁸⁶ Vocus Group “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraphs 3-5, and 24-34.

⁸⁷ 2degrees “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 3. See also 2degrees “Cross-submission on Fibre input methodologies draft decision” (18 February 2020), page 5.

⁸⁸ 2degrees “Submission on Fibre input methodologies – Draft decision” (30 January 2020), pages 5 and 11. See also Vocus Group “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraphs 5, 24, 27, 31-34.

⁸⁹ Vocus Group “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 5.

transitional challenges and the different complexities in the Part 6 regulatory environment.⁹⁰

- 2.202.5 Spark also noted the key legislative, technical and competitive differences in the regulated markets.⁹¹
- 2.203 In their submissions on our draft decision, Vocus and 2degrees both suggested that our Part 6 processes and decisions should align more closely with our approach to Part 4. Vocus express concern that our Part 6 decisions deviate too much, and there are missing elements, from the Part 4 IMs. 2degrees suggested that we must carry out a clause by clause review of the Part 4 IMs to identify gaps or omissions. We disagree with Vocus and 2degrees' suggestion that the starting point for our Part 6 decisions and processes should be the same as that for Part 4.
- 2.204 We acknowledge the Part 6 regulatory framework is based on Part 4 and we bear Part 4 in mind as we make our decisions. We agree with Chorus and Spark to the extent they recognise the important legislative, technical and competitive differences between the Part 6 and Part 4 regime. Our primary task is to give effect to the text and the purpose of the Part 6 legislation, taking into account the unique characteristics of telecommunications markets. Only then do we draw on Part 4 precedent to the extent it is relevant, recognising that the key differences discussed above may require a different approach or decision. We consider this minimises the risk that we wrongly adopt a Part 4 approach.
- 2.205 Vocus and 2degrees provide specific examples of where they consider our IMs do not adequately apply Part 4 precedent. We address these submissions on our draft decisions in the technical chapters of this paper. For example, paragraphs 3.444 and 3.457-3.462 of Chapter 3 for the asset valuation IM discuss the rules for related party transactions.

Purpose statements in the Act

- 2.206 This section discusses the way we interpret and apply the purpose statements in the Act that are relevant to the IMs. It also explains our interpretation of a number of key terms used in the purpose statements.

⁹⁰ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraphs 59-60.

⁹¹ Spark "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 5.

The Act has several purpose statements relevant to the regulation of FFLAS

- 2.207 We must develop and implement the Part 6 regulatory regime, including IMs, consistently with the relevant purposes in the Act. The Act contains a number of purpose statements that we are required to apply when setting the IMs.
- 2.207.1 The overall purpose of the Act, in s 3, is to ‘regulate the supply of telecommunications services’.
- 2.207.2 The purpose of Part 6 is expressed in s 162, which is focussed on promoting the long-term benefit of end-users in markets for FFLAS by promoting outcomes consistent with those produced in workably competitive markets.
- 2.207.3 We are required by s 166(2), when making recommendations, determinations or decisions, to give effect to the purpose in s 162 and, to the extent we consider it relevant, the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services.
- 2.207.4 Finally, Part 6 includes dedicated purpose statements for IMs (s 174), ID regulation (s 186), PQ regulation (s 192) and anchor services (s 208(7)).

- 2.208 We go on to discuss how we have interpreted and applied the purpose statements relevant to the IMs below.

The purpose statements in ss 162 and 166

- 2.209 Section 166 specifies the matters that the Commission is required to consider when it exercises its functions under Part 6.

166 Matters to be considered by Commission and Minister

- (1) This section applies if the Commission or the Minister is required under the Part to make a recommendation, determination, or decision.
- (2) The Commission or Minister must make the recommendation, determination, or decision that the Commission or Minister considers best gives, or is likely to best give, effect—
- (a) to the purpose in section 162; and
- (b) to the extent that the Commission or Minister considers it relevant, to the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services.

2.210 This section governs our decision-making process for all recommendations, determinations and decisions under Part 6, including IMs, ID regulation, and PQ regulation.

2.211 The purpose of Part 6 is set out in s 162.

162 Purpose

The purpose of this Part is to promote the long-term benefit of end-users in markets for fibre fixed line access services by promoting outcomes that are consistent with outcomes produced in workably competitive markets so that regulated fibre service providers—

- (a) have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and
- (b) have incentives to improve efficiency and supply fibre fixed line access services of a quality that reflects end-user demands; and
- (c) allow end-users to share the benefits of efficiency gains in the supply of fibre fixed line access services, including through lower prices; and
- (d) are limited in their ability to extract excessive profits.

2.212 Apart from the replacement of ‘consumers’ with ‘end-users’, this purpose statement is materially the same as s 52A of the Commerce Act.⁹²

2.213 We go on to discuss our interpretation of the ss 162 and 166 purpose statements in more detail below. This is followed by a discussion of key terms used in those purpose statements, and then a discussion of how the ss 162 and 166 purpose statements interact.

Our interpretation of the s 162 purpose statement

2.214 In developing the new regulatory framework, Parliament recognised that FFLAS would be supplied, at least initially, in a market (or in markets) where there is little or no competition. While the Act recognises, in s 210, that competition might emerge in future in some geographic areas or in some FFLAS segments, in many other areas/segments there is little likelihood of an increase in competition.

2.215 Section 162 is adapted from the purpose statement in s 52A of the Commerce Act. These purpose statements direct us, through the regulation that we put in place, to promote four specific outcomes consistent with those produced in workably

⁹² The only other changes are the replacement of “markets referred to in s 52” with “markets for FFLAS” and “suppliers of regulated goods or services” with “regulated fibre service providers”, and a small change to the wording of paragraph (c).

competitive markets, listed in clauses (a) to (d) of s 162, rather than trying to promote competition directly.

2.216 In the Part 4 IM merits appeal, the High Court discussed the purpose and operation of s 52A in detail.⁹³ Given that s 162 was based on this provision, the High Court's analysis provides valuable guidance. We set out below our view of s 162.

- 2.216.1 The s 162 purpose statement is concerned with the promotion of specific outcomes that are consistent with those in 'workably competitive markets'. This recognises that perfect competition is not a standard that the Act seeks regulation to achieve, for the market/s in which FFLAS is supplied.
- 2.216.2 Workable competition is encapsulated by the concept of economic efficiency, which includes technical (productive) efficiency, allocative efficiency and dynamic efficiency. In a practical context, workable competition implies the existence of sufficient rivalry between firms to push prices close to efficient costs (including the cost of capital and thus a reasonable level of profit). The three prongs of economic efficiency are described at paragraph 2.269 below.
- 2.216.3 The assessment of these objectives requires a judgement. While prices in workably competitive markets may never exactly reflect efficient costs, what is important is that they tend towards efficient outcomes, including firms earning normal rates of return after covering efficient costs and incentives for investment. The section envisages that regulated providers will have incentives to innovate and invest consistent with how such incentives apply to firms in workably competitive markets.
- 2.216.4 The same tendencies that lead toward prices based on efficient costs and reasonable rates of return will also lead to improved efficiency, provision of services reflecting consumer demands, sharing of the benefits of efficiency gains with consumers, and limitation on firms' ability to extract excessive profits. These are the outcomes – as specified in s 162(a)-(d) – that s 162 requires us to promote in the implementation of regulation under Part 6.

⁹³ Wellington International Airport Ltd & Ors v Commerce Commission [2013] NZHC 3289, at [6] – [29].

2.217 Consistent with the High Court's analysis, our view is the following.⁹⁴

- 2.217.1 We must promote the long-term benefit of FFLAS end-users by promoting the s 162(a)-(d) outcomes consistent with what would be produced in workably competitive markets.⁹⁵ Our focus is not on replicating all the potential outcomes of workably competitive markets *per se*, but rather with specifically promoting the s 162(a)-(d) outcomes for the long-term benefit of FFLAS end-users consistent with the way those outcomes are promoted in workably competitive markets.
- 2.217.2 The objectives in s 162 (a)-(d) are integral to promoting the long-term benefit of end-users, and reflect key areas of regulated provider performance that characterise workable competition. None of the objectives are paramount and, further, the objectives are not separate and distinct from each other, or from s 162 as a whole. Rather, we must balance the s 162(a)-(d) outcomes,⁹⁶ and must exercise judgement in doing so. When exercising this judgement, we are guided by what best promotes the long-term benefit of end-users.⁹⁷

Submissions on s 162

- 2.218 We have not changed our position on the meaning of s 162 since our draft decisions.
- 2.219 Enable and Ultrafast agreed with our interpretation of s 162 and said "LFCs agree with the Commission's view that none of the objectives in s 162 are paramount, the objectives are not separate and distinct from each other, and the Commission must balance those outcomes to be best promote the long-term benefit of end-users of FFLAS services."⁹⁸

Interpretation of s 166(2)(b)

- 2.220 Section 166(2)(b) provides that, to the extent that we consider it relevant, we must make decisions which we consider best give effect to the promotion of "workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services." This stands alongside our obligation to make decisions that best give effect, or are likely to best give effect, to the s 162 purpose

⁹⁴ While this interpretation is based on our, and the High Court's, view of s 52A of the Commerce Act, in the context of FFLAS we will also recognise the unique competitive landscape of telecommunications and differences between Part 4 and Part 6. This includes Parliament's directive that we should consider the promotion of competition directly in certain circumstances (s 166).

⁹⁵ Wellington International Airport Ltd & Ors v Commerce Commission [2013] NZHC 3289 at [25] – [27].

⁹⁶ Wellington International Airport Ltd & Ors v Commerce Commission [2013] NZHC 3289 at [684].

⁹⁷ Wellington International Airport Ltd & Ors v Commerce Commission [2013] NZHC 3289 at [1461].

⁹⁸ Enable and Ultrafast Fibre "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 2.6.

statement, adding a further requirement to consider whether there is potential for our decisions to promote actual workable competition (rather than the outcomes of workable competition) for the long-term benefit of all telecommunications end-users.

- 2.221 Section 166(2)(b), as enacted, was included in the Telecommunications (New Regulatory Framework) Amendment Bill as reported back by the Economic Development, Science and Innovation Committee. In recommending this amendment, the Committee explained that it would permit the Commission to consider all end-users' interests, not just the interests of fibre users, and therefore give the Commission the necessary flexibility to respond to technological change.⁹⁹
- 2.222 Section 166(2)(b) recognises that the telecommunications industry is characterised by constant development and the rapid uptake of new and evolving technologies. These changing market dynamics mean that the terms on which FFLAS is supplied could affect competition in other telecommunications markets (such as retail broadband markets) and may, in future, lead to the emergence of competition in some FFLAS or in certain geographic areas.
- 2.223 For example, wireless services may be a substitute, or may become a closer substitute, for FFLAS in certain market segments; for example, for end-users with relatively low bandwidth requirements.¹⁰⁰ Similarly, other access technologies which are substitutes for FFLAS may become available in the future. Even in the existing environment, there is potential for wholesale competition between Chorus and the other LFCs where Chorus continues to supply copper-based services, and between Vodafone's HFC network on the one hand, and Chorus' and Enable's UFB initiative networks in Wellington and Christchurch respectively on the other.
- 2.224 When applying s 166(2)(b) we do not consider that we should focus on promoting a particular form of competition. Neither do we consider that there is any presumed hierarchy between the different types of competition that we could promote, or that we should limit ourselves at the outset to the consideration of particular telecommunications markets. We will consider the effect of our decisions on the promotion of competition in any market where competition exists or has the potential to emerge.
- 2.225 In the FFLAS market(s) there is potential for infrastructure competition where an access seeker purchases a wholesale input from a regulated provider and uses that

⁹⁹ Telecommunications (New Regulatory Framework) Amendment Bill (293—2), as reported from the Economic Development, Science and Innovation Committee. See 'Purpose of Part 6' under the heading 'Part 6 New regulatory framework for fibre fixed line access services.'

¹⁰⁰ Where fixed wireless access services are provided using DFAS, s 162 remains relevant.

input to supply downstream products and services. Under the Fibre Deeds, regulated providers are required to offer certain layer 1 input services from 1 January 2020 for UFB1 and 1 January 2026 for UFB2.¹⁰¹

- 2.226 The requirement to offer equivalent and non-discriminatory prices for these layer 1 input services will affect access seekers' decisions on how to deliver retail services to end-users. For example, an access seeker has the choice between purchasing layer 2 bitstream services or investing in layer 1 unbundled fibre services. Under s 166(2), we must therefore consider the promotion of actual competition at different levels of the market.
- 2.227 Where we consider that the promotion of competition may be relevant, we must consider whether it would be in the long-term interests, of both FFLAS end-users and the end-users of telecommunications services that are not regulated FFLAS, to promote competition. The consideration would evaluate various forms of competition including between access seekers, between the individual regulated providers, between fibre and other technologies, and between the regulated providers and access seekers.
- 2.228 Our decisions will be further informed by whichever option provides the greatest net benefit to end-users (to the extent this can be assessed) when taken together with our obligations to give effect to the purpose of s 162 under s 166(2)(a). Given the dynamic nature of telecommunication markets, it is particularly important that our decisions do not unreasonably hinder or impede the supply of telecommunications services that use new and more efficient technologies.
- 2.229 It may also be possible to produce greater overall benefits for end-users of telecommunications services (including FFLAS end-users) by enhancing workable competition in telecommunications markets through our decisions under Part 6, rather than solely focussing on promoting the outcomes listed in s 162 for the long-term benefit of end-users in markets for FFLAS.

How ss 162 and 166 interact

- 2.230 Section 166 specifies the considerations that we must take into account when making our decisions under Part 6. This means we must consider both the purpose statement in s 162 and the promotion of workable competition referred to in s 166(2)(b) when we make determinations that set the IMs (under subpart 3), ID regulation (under subpart 4) and PQ regulation (under subpart 5).

¹⁰¹ The input services are a Direct Fibre Access Service, a PON Fibre Access Service, a Central Office and POI Co-location Service, and any other layer 1 unbundled service on any part of the network that is required.

- 2.231 We must exercise our judgement on a case by case basis. However, we make the following observations about the relationship between the two objectives in s 166(2).
- 2.231.1 We must make an assessment of what decision will best give effect to the statutory purposes and the outcomes we are required to promote by s 166. This requires an evaluative judgement.
- 2.231.2 Section 166(2)(a) directs us to make decisions that best give effect to the purpose in s 162. This is a mandatory consideration.
- 2.231.3 We are also required to make decisions that best give effect to the outcome in s 166(2)(b) (namely, the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services). This is also a mandatory consideration, but only in cases where we consider that it is ‘relevant’. In assessing whether the promotion of workable competition is relevant, we will have to consider whether a decision has the potential to affect the level of competition in one or more telecommunications markets.
- 2.231.4 Section 166(2) does not establish a hierarchy between the promotion of the two outcomes. Where we consider that the promotion of competition is relevant, we must strive to make the decision that best gives, or is likely to best give effect, to both the promotion of outcomes consistent with workable competition for the benefit of end-users of FFLAS under s 162, and to the promotion of competition in telecommunications markets for the benefit of end-users in those markets under s 166(2)(b).
- 2.232 We need to consider the potential benefits and detriments of our decisions on the s 162 outcomes, on the promotion of competition in telecommunications markets, and how these outcomes could impact the long-term interests of telecommunications services end-users, including FFLAS end-users.
- 2.233 In our view there is a complementary relationship between s 162 and s 166(2)(b). However, it is possible there may be situations where the best blend of the objectives in s 166(2) would be achieved by making a decision that may promote the outcomes in s 162 to a lesser extent, but that enhances competition in one or more telecommunications services markets.
- 2.234 As noted above, workably competitive markets can generally be expected to promote economic efficiency—allocative, productive and dynamic efficiency. Competitive pressures therefore generally move market participants closer to efficient outcomes that are beneficial to end-users over time. Competitive pressures generally also result in efficiency gains from improved productivity being shared with

end-users over time and constrain market participants from extracting excessive profits from end-users.¹⁰²

- 2.235 These outcomes, including those listed in s 162, can be promoted through incentive regulation, including: incentives occurring under revenue cap regulation, incentives resulting from applying minimum quality standards (and associated penalties), and incentives provided through ID with the implied threat of further regulation. The outcomes can also be promoted by directly promoting workable competition. As incentive regulation is an imperfect substitute for workable competition, where feasible and as a general principle, we consider that workable competition is more likely to be the preferred mechanism to promote the relevant outcomes under ss 162 and 166(2)(b).

Submissions on ss 162 and 166

- 2.236 We have not changed our position on the meaning of ss 162 and 166 since our draft decisions.
- 2.237 Chorus welcomed the development of the Commission’s view since the emerging views paper, but it did not agree with the Commission’s approach to the interaction between ss 166(2)(b) and 162.¹⁰³
- 2.238 In its submission on our draft decision, Chorus said “As set out in our submissions on the Process and Issues Paper and EV Paper, we remain of the view that the Part 6 purpose statement in section 162 has primacy over the objective in section 166(2)(b) (“the long-term benefit of all relevant telecommunication’s end-users”). Decisions made in situations where section 166(2)(b) is considered relevant should always be consistent with section 162.”¹⁰⁴
- 2.239 We disagree with Chorus to the extent it considers s 162 has primacy over s 166(2)(b). For the reasons explained from paragraphs 2.230, we remain of the view that in giving effect to the purposes set out in s 166(2), neither of s 166(2)(a) nor s 166(2)(b) has primacy over the other. In setting the regulatory rules for the Part 6 regime we will always consider both objectives. We acknowledge that while in some cases the provisions might be complementary, in others the outcome that best promotes the long-term benefit of end-users might require balancing the two objectives or promoting one of the limbs to a greater extent than the other. This is no different to the consideration and balance we seek to achieve when considering the different limbs of s 162 – eg, promoting incentives to invest per s 162(a) versus limiting excessive profits per s 162(d).

¹⁰² These are the outcomes we are required to promote in s 162(c) and (d).

¹⁰³ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 69.

¹⁰⁴ Ibid, paragraph 68.

- 2.240 Vector, in its submission on our draft decision, encouraged the Commission to “ensure all its decisions for Part 6 including both price and non-price decisions are made with the section 166 lens. Otherwise the Commission is derogating from its statutory duty. The PONFAS examples highlights the considerable scope for non-price decisions to result in outcomes inconsistent with workable competition.”¹⁰⁵
- 2.241 We note Vector’s submission on our draft decision and restate that we will apply the s 166 criteria in accordance with the Act and, in relation to s 166(2)(b), in cases where we consider that it is relevant.

Our interpretation of key terms used in the purpose statements in ss 162 and 166

- 2.242 This subsection explains our interpretation of the following key terms used in the purpose statements in ss 162 and 166:

2.242.1 end-users; and

2.242.2 workably competitive markets and workable competition.

End-users

- 2.243 The term end-user is used in both of the limbs of s 166(2).

- 2.244 “End-user” is defined in s 5 as:

a person who is the ultimate recipient of that service or of another service whose provision is dependent on that service

End-user in s 166(2)

- 2.245 Section 162 requires us to focus on the long-term benefit of FFLAS end-users, while s 166(2)(b) requires us to consider the long-term benefit of telecommunications services end-users more generally. For each of these sections, we consider ‘end-user’ as follows.

2.245.1 **Section 162 (and s 166(2)(a)):** In relation to a FFLAS, a person who is the ultimate recipient of a FFLAS or of another service whose provision is dependent on that FFLAS.

2.245.2 **Section 166(2)(b):** In relation to a telecommunications service, a person who is the ultimate recipient of a telecommunications service or of another service whose provision is dependent on that telecommunications service.

¹⁰⁵ Vector “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 13.

- 2.246 For both purposes in s 166(2), the ‘end-user’ includes consumers in downstream retail markets who receive the relevant service and any services which depend on that relevant service as an input.

Section 162 – end-users in markets for FFLAS

- 2.247 The purpose statement in s 162 refers to the promotion of the long-term benefit of end-users in markets for FFLAS. We interpret this widely to include end-users who are directly and indirectly in markets for FFLAS. This includes end-users who purchase a service that uses FFLAS as an input to the end-user’s service. For example, an end-user of a FWA service would qualify as an end-user in markets for FFLAS under s 162 where that FWA service uses a FFLAS input (such as DFAS). It would not include an end-user of a FWA service where that FWA service uses a mobile network, with no FFLAS inputs.
- 2.248 As set out in paragraph 2.107, we consider that input services such as DFAS, ICABS and certain co-location services are FFLAS. These FFLAS are often inputs into services such as FWA and mobile services. To the extent that these services or other services rely on FFLAS as an input, we will consider the end-users of these services to be end-users in markets for FFLAS.

Section 162 – the meaning of dependent

- 2.249 The second part of the definition of end-user in s 5 refers to another service whose provision is dependent on a FFLAS. The LFCs currently have restrictions on selling FFLAS as a wholesale service and cannot sell FFLAS directly to retail customers.¹⁰⁶ Therefore the second part of the definition is particularly important to s 162 because it captures the retail end-users of FFLAS.
- 2.250 We have considered the meaning of “dependent” within the definition of end-user as it applies to s 162. It could be argued a service is not dependent on FFLAS if there are commercial alternatives available.
- 2.251 In our view, the term “end-user” must include all ultimate consumers of FFLAS. If a FFLAS is being used as an input into another service then it is being consumed by end-users of that other service, irrespective of whether a substitute for FFLAS is available.
- 2.252 In interpreting “dependent”, we recognise that there needs to be a limit that excludes services that use FFLAS in a remote sense. In identifying potential end-users in markets for FFLAS for the purposes of s 162, we have applied a test of proximity to determine whether other services could be described as “dependent” on FFLAS.

¹⁰⁶ For Chorus, see ss 690 and 69R. Refer to the constitutions of the other LFCs for similar restrictions. Also refer to clause 7 of the Fibre Deeds.

2.253 For example, we consider that recipients of electricity services provided by a smart metering service using FFLAS inputs are not end-users under s 162, on the basis that the end-user of the smart meter service is the electricity provider that owns and runs the meter. The electricity customers of an electricity retailer receive electricity services, which includes the services provided by the electricity meter. However, we consider the linkage between electricity services on the one hand, and the smart meter that depends on the FFLAS on the other, to be insufficiently proximate, and therefore electricity customers would not fall within the end-user definition under s 162.

Submissions on the meaning of end-user

2.254 We have not changed our position on the interpretation of end-user since our draft decision.

2.255 Submitters did not object to our interpretation of end-user. Enable and Ultrafast noted “While LFCs accept the definition includes ‘the ultimate recipient of another service whose provision is dependent on FFLAS’, and therefore does extend to wireless customers where FFLAS is an input, the Commission needs to proceed with caution in considering the interests of fixed wireless users under s 162, as the Commission accepts that the definition of end user does not include a FWA customer with no FFLAS inputs.”¹⁰⁷

2.256 We acknowledge Enable and Ultrafast’s comments above and agree. In considering end-users in markets for FFLAS under s 162, we will be careful to only consider end-users of services where FFLAS is an input.

Workably competitive markets and workable competition

2.257 The main purpose statement for the regulation of FFLAS in s 162 refers to “promoting outcomes that are consistent with outcomes produced in workably competitive markets.” Similarly, s 166(2)(b) requires us, to the extent we consider it relevant, to promote workable competition in telecommunications markets generally.¹⁰⁸

Promotion of workable competition

2.258 We did not consider it necessary for the purposes of our final decision to define what the concept of “promotion” means in the context of s 166(2)(b) (or “to promote” or “promoting” in s 162), other than to observe that they are general terms referring to advancing or furthering those matters.

¹⁰⁷ Enable and Ultrafast “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 4.2.

¹⁰⁸ See further discussion on ss 162 and 166(2)(b) starting from paragraph 2.230.

- 2.259 We note that “promot[ing] competition” is a phrase used in s 1A of the Commerce Act to describe the Commerce Act’s purpose (other than Part 4), which, in that case, encompasses a wide range of mechanisms (including prohibitions of certain provisions and transactions) and functions on the part of the Commission.
- 2.260 We see s 166(2)(b) as focussing on creating conditions so that competition is able to thrive, and infrastructure providers can compete on their merits, where that is to the long-term benefit of end-users. This need not necessarily involve the Commission taking active steps to force competition to emerge, in the nature of ‘putting the thumb on the scales’ and favouring the interests of an actual or potential competitor or class of competitors.
- 2.261 Rather, our focus will be on reducing, or eliminating where possible, distortions in the market that might otherwise hinder the emergence of competition or providers’ ability to compete on the merits, where we consider this to be for the long-term benefit of end-users of telecommunications services. For example, Chorus’ copper network might continue to compete against the other LFC fibre networks for the foreseeable future, and some of Chorus’ assets may be used jointly by its copper and fibre networks.
- 2.262 It would be consistent with our role in “promoting competition” under s 166(2)(b) if the Commission were to use the cost allocation IM to ensure that the costs of those jointly-used assets are not disproportionately allocated to Chorus’ FFLAS, given the risk that such an allocation might provide undue competitive advantage for Chorus’ supply of unregulated services, such as Chorus’ copper services in LFC areas.
- 2.263 In deciding what the promotion of competition might require, the Commission may have regard to the asymmetric error cost of making decisions that influence market outcomes. In some cases, the Commission might favour allowing market forces to operate and to monitor how outcomes develop, and only decide to intervene if and when it is more apparent that market failures exist.

Workable competition and workably competitive markets

- 2.264 The High Court considered the meaning of workable competition in the Part 4 IM merits appeal.¹⁰⁹ There are three key conclusions that we see as relevant to the interpretation of workable competition in the application of Part 6.
- 2.265 First, the Court noted that there is no consensus on the precise conditions that define “workable competition”, rather:¹¹⁰

¹⁰⁹ Wellington International Airport Ltd & Ors v Commerce Commission [2013] NZHC 3289 at [6] – [27].

¹¹⁰ Wellington International Airport Ltd & Ors v Commerce Commission [2013] NZHC 3289 at [13].

... workable competition is a practical description of the state of an industry where government intervention to make the market work better is not justified because the socially desirable outcomes generated by competition already exist to a satisfactory degree.

2.266 Second, the Court noted that when considering workably competitive markets, what is important is their tendency over time towards the outcomes that would be produced in strongly competitive markets:¹¹¹

[18] In our view, what matters is that workably competitive markets have a tendency towards generating certain outcomes. These outcomes include the earning by firms of normal rates of return, and the existence of prices that reflect such normal rates of return, after covering the firms' efficient costs.

[19] Of course, firms may earn higher than normal rates of return for extended periods. On the other hand, firms may earn rates of return less than they expected and less than commensurate with the risks faced by their owners when they made their investments. They may even make losses for extended periods. Prices in workably competitive markets may never exactly reflect efficient costs, including a normal rate of return.

[20] But the tendencies in workably competitive markets are towards such returns and prices. By themselves, these tendencies will also lead towards incentives for efficient investment (investment that is reasonably expected to earn at least a normal rate of return) and innovation. That is to say, the prices that tend to be generated in workably competitive markets will provide incentives for efficient investment and for innovation.

[21] The same tendencies towards prices based on efficient costs and reasonable rates of return will lead also to improved efficiency, provision of services reflecting consumer demands, sharing of the benefits of efficiency gains with consumers, and limited ability to extract excessive profits.

[22] In short, the tendencies in workably competitive markets will be towards the outcomes produced in strongly competitive markets. The process of rivalry is what creates incentives for efficient investment, for innovation, and for improved efficiency. The process of rivalry prevents the keeping of all the gains of improved efficiency from consumers, and similarly limits the ability to extract excessive profits.

2.267 Third, the Court acknowledged that even within workably competitive markets there are markets involving more or less competition, but that the outcomes that should be pursued are those associated with strongly competitive markets.¹¹²

[24] ... workable competition is best thought of in terms of market outcomes and specifically the market outcomes produced by (strong) competition ...

...

¹¹¹ Wellington International Airport Ltd & Ors v Commerce Commission [2013] NZHC 3289 at [18] – [22].

¹¹² Wellington International Airport Ltd & Ors v Commerce Commission [2013] NZHC 3289 at [24].

- (c) Actual markets demonstrate varying levels of competition. To a large extent these varying levels are caused by structural characteristics of the market, such as its barriers to entry, the level of sunk costs, economies of scale and scope (with natural monopoly at an extreme).
- (d) As a consequence, actual markets will produce outcomes that are nearer or further from the socially desirable ones seen where competition is strong.
- (e) The outcomes of strongly competitive markets are better (for society) than those from less competitive markets.
- (f) As a corollary, the outcomes from workably competitive markets are better than from markets that do not rise to that level of competition.
- (g) Further, within workably competitive markets, the outcomes produced in the more competitive markets are better than those produced by the less competitive.
- (h) Since it is outcomes that matter to society, when thinking about workably competitive markets, the outcomes to be pursued are the outcomes produced by the more strongly competitive markets. This is not because such outcomes can be routinely expected, but because they are desirable. Why would regulation aim lower than what is desirable?

- 2.268 In short, a workably competitive market is one that provides outcomes that are reasonably close to those found in strongly competitive markets.
- 2.269 The concept of workable competition reflects wide recognition by economists that competitive pressures would be expected to move market participants closer towards, rather than further away from, efficient outcomes that are beneficial to consumers over time. The term 'economic efficiency' encompasses three components: technical (or productive) efficiency, allocative efficiency and dynamic efficiency.¹¹³
- 2.269.1 **Productive efficiency** is present when producers use inputs in such a manner as to minimise costs, subject to technological constraints.
- 2.269.2 **Allocative efficiency** occurs when resources are allocated within the economy to the uses in which they have the highest value.
- 2.269.3 **Dynamic efficiency** refers to decisions made over time and includes decisions relating to investment and/or innovation that can improve productivity as well as the range and quality of services.
- 2.270 While prices in workably competitive markets may never exactly reflect efficient costs, what is important is that they tend towards efficient outcomes, including firms

¹¹³ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (December 2010), at paragraph 2.5.8.

earning normal rates of return after covering efficient costs and incentives for efficient investment.

- 2.271 The regulation of FFLAS under Part 6 was introduced because FFLAS, for the most part, are not expected to be subject to workable competition, at least in the short term. Therefore, when applying regulation, we aim to create incentives that encourage regulated providers to become more efficient over time. If market conditions develop in a way that approximates the outcomes of workably competitive markets in future, this would be grounds for us to undertake a deregulation review under s 210.

Key economic principles

- 2.272 This section describes the key economic principles that we have had regard to in reaching our final decisions.
- 2.273 The key economic principles are tools that can help us reach regulatory decisions that promote the purposes described in s 166(2). The economic principles can also help promote regulatory predictability by signalling to stakeholders how we are likely to approach relevant decisions. However, they do not take precedence over these statutory purposes. Moreover, if the principles cease to be consistent with the purposes in s 166(2), or if they are not consistent with one or both of these purposes in a specific situation, we will be transparent with stakeholders that we could not continue to apply these principles.

Context for the key economic principles

Interaction with the purpose statements of the Act

- 2.274 Any economic principles we adopt are not outcomes that we seek to give effect to for their own sake. Rather, we will only apply the principles if they help us give effect to the purposes in s 166(2).
- 2.275 This view is consistent with the position we expressed in the 2015-2016 Part 4 IM Review that the key economic principles are subordinate to the Act's purpose.¹¹⁴
- 2.276 Some stakeholders, eg Spark, note in submissions that it cannot be assumed that the application of the economic principles will necessarily be consistent with the statutory purpose.¹¹⁵ We agree that such circumstances may arise in future and we reiterate our position that we will only apply the principles if they help us give effect

¹¹⁴ See Commerce Commission "Input methodologies review decisions: framework for the IM review" (20 December 2016), paragraph X19.

¹¹⁵ Spark "Submission on new regulatory framework for fibre" (21 December 2018), paragraph 56.

to the Part 6 purposes (see further discussion on the status of the key economic principles at paragraphs 2.282-2.288 below).

Decision-making framework

- 2.277 To decide whether we should adopt any economic principles for the Part 6 regime, we considered the extent to which the economic principles will:
- 2.277.1 help us make and explain our decisions; and
 - 2.277.2 provide predictability to stakeholders.

How this decision fits into the wider context of the fibre regime

- 2.278 Adopting a set of principles to guide decisions we make on the IMs helps us make individual decisions that are consistent with each other and with the requirement to best give effect to the purposes described in s 166(2).
- 2.279 The relevance of any principles we adopt is likely to extend to developing and applying PQ and ID requirements.

Overview of the key economic principles

- 2.280 We decided to adopt the following economic principles to help us develop and implement the Part 6 regime.¹¹⁶
- 2.280.1 **Real financial capital maintenance (FCM):** we set our regulatory rules in a way that provides a regulated provider with an *ex-ante* opportunity to earn a normal return on capital. A normal return is the return on capital that an efficient firm has an *ex-ante* opportunity to earn in a workably competitive market (see also paragraph 2.26 above). Allowing regulated providers the *ex-ante* opportunity, but not the guarantee, of earning normal returns provides them with a chance to maintain the financial capital they have invested, therefore maintaining incentives to invest.
 - 2.280.2 **Allocation of risk:** ideally, we allocate risks to regulated providers or end-users depending on who is most able to manage the risk, unless doing so would be inconsistent with the Part 6 purposes. Appropriate risk allocation, and where relevant appropriate compensation for the risks carried, maintains incentives to invest and promotes efficient behaviour.

¹¹⁶ These are the same three principles that we considered had broad application across the Part 4 regime. There are also other principles that underpin particular decisions on the IMs for regulated FFLAS, which could be described as part of the policy intent for those particular IMs. Where relevant, such principles are discussed in the chapter containing our final decisions for the particular IM. In this section, we are concerned only with the economic principles that have broad application across the Part 6 regime.

2.280.3 Asymmetric consequences of over-/under-investment: in applying FCM, we recognise any asymmetric consequences to end-users of regulated FFLAS, over the long-term, of under-investment versus over-investment.

2.281 We elaborate on each of these three key principles and how they can help us to promote the Part 6 purposes below.

Status of the key economic principles

2.282 The three key economic principles provide useful guidance to us in giving effect to the purposes in s 166(2).

2.283 We use FCM, for example, as a way of promoting s 162(a)-(d) outcomes that would be achieved in workably competitive markets—ie, in workably competitive markets efficient firms have an *ex-ante* opportunity to make at least a normal return over the long-term. However, the FCM concept is not absolute—it does not guarantee that regulated providers will earn a normal return over the life of the assets, as such a guarantee would be inconsistent with s 162.¹¹⁷

2.284 In applying FCM, we recognise the asymmetric consequences of over-investment and under-investment to the long-term benefit of end-users. Where practicable, we seek to allocate risks between end-users and regulated providers according to the party best placed to manage them, but only where this is consistent with the purposes in s 166(2).

2.285 To the extent the key economic principles continue to assist us to give effect to the purposes in s 166(2), we would not depart from them lightly. The Part 6 regime (and the IMs specifically) were intended to provide greater certainty to stakeholders over time, and we accept that wholesale rejection of the key principles adopted into the regime may affect this certainty.¹¹⁸ However, these principles are not intended as a ‘regulatory compact’—that is, they do not form an (implicit) agreement between us as the regulator and regulated providers.

2.286 If the principles cease to be consistent with the purposes in s 166(2) or are not, in a particular situation, consistent with these purposes, we will be transparent with stakeholders about the fact that we could not continue to apply one (or more) of the principles. Specifically, we acknowledge that there may come a time when, due to the development of new technologies or other circumstances, the key economic principles no longer assist us in promoting the purposes described in s 166(2) and

¹¹⁷ It is explicitly recognised at s 177(4) that “It is not the intention [...] that regulated fibre service providers should be protected from all risk of not fully recovering those financial losses through prices over time.”

¹¹⁸ See s 174 for the purpose of the IMs.

application of these principles is no longer sustainable. This interpretation of the status of the key economic principles is consistent with the one adopted under Part 4 regulation.¹¹⁹

2.287 We consider the three economic principles fit with our decision-making framework for the following reasons.

2.287.1 **They help us make and explain our decisions:** These three key economic principles have a track record of usefulness in Part 4 regulation. We consider that the principles provide a useful framework to guide our decisions under Part 6 within the context of the specific market circumstances for FFLAS and the statutory framework of the Act.

2.287.2 **They increase predictability:** Stakeholders are familiar with these principles and supported their use in the Part 6 regime.¹²⁰ These three economic principles can also help provide cross-sector consistency, which will assist the predictability of the regime.

2.288 We considered not adopting any economic principles to help us in our consideration of what will, or be likely to, best give effect to the purposes described in s 166(2), but we concluded that the benefits of adopting these three principles outweigh any potential additional complexity they introduce in the regime given the principles:

2.288.1 provide additional clarity to stakeholders on the approach we would generally take when making decisions;

2.288.2 can help promote the purposes in s 166(2) (see paragraphs 2.296, 2.299 and 2.306 below) and have proven useful in our experience in regulating markets under Part 4; and

2.288.3 do not bind our decisions and we will take them into account only to the extent that they assist us to best give effect to the purposes described in s 166(2).

Real financial capital maintenance

2.289 This principle is intended to provide efficient regulated providers with the *ex-ante* opportunity to earn a ‘normal return’. FCM provides a regulated provider the opportunity to maintain the financial capital it has invested. This concept implicitly underpins the BBM.

¹¹⁹ Commerce Commission “Input methodologies review decisions: Framework for the IM review” (20 December 2016), paragraphs 151-152.

¹²⁰ See discussion at paragraphs 2.310-2.314 below.

- 2.290 FCM assumes that capital should be maintained in real terms.¹²¹ Over the lifetime of an asset, returns for efficient firms (discounted by an appropriate WACC) would be expected to be approximately equal to the initial investment amount. This gives rise to the related 'NPV=0' principle, as the expected net present value (**NPV**) of an efficient investment and its subsequent returns should be zero. NPV=0 acts as an implementation of the FCM principle, because satisfying NPV=0 over the lifetime of an investment acts to preserve the regulated provider's financial capital in real terms.
- 2.291 Given that a typically efficient firm would expect *ex-ante* to earn at least a normal rate of return over time, application of this principle can assist in promoting the s 162 outcomes and purpose. Although a strict NPV=0 outcome is unlikely to result in practice, it is a useful concept in moving outcomes closer to, rather than further away from, normal returns over time.¹²²
- 2.292 The High Court supported the FCM principle in the Part 4 IM merits appeal judgment. The Court observed that:¹²³
- [256] Central to the Commission's approach to Part 4 regulation and to regulatory control of natural monopolies more generally are the related concepts or principles of NPV (net present value) = 0 (NPV = 0) and financial capital maintenance (FCM). In terms of the Commission's determination of the [input methodologies], these are first mentioned in the executive summary to the June 2009 [input methodologies], Discussion Paper. There the Commission, in what we think is a non-controversial way, explains the relationship between the s 52A(1) purpose and outcomes, and economic principles stemming from the three dimensions of economic efficiency – allocative, productive and dynamic – which the s 52A(1) outcomes both reflect and are designed to promote.
- 2.293 Under PQ regulation, the FCM principle is applied on an *ex-ante* basis—regulated providers are *expected* to be able to earn a normal return at the beginning of each regulatory period, but have the opportunity to make higher returns through cost savings, efficiency improvements or by innovating. Similarly, lower returns may occur if a regulated provider becomes less efficient, or faces other unexpected cost increases.
- 2.294 Importantly, PQ regulation does not *guarantee* an *ex-post* normal return over the lifetimes of a regulated provider's assets. The allocation of risks between regulated providers and end-users will usually mean that, although regulated providers might have expected to earn a normal return *ex-ante*, such a return is not earned *ex-post*.

¹²¹ This is achieved by compensating the supplier for inflation, either by using a nominal WACC or by indexing the value of the RAB for inflation or both, in which case revaluation gains due to inflation indexing should be recognised as income.

¹²² For example, a supplier may over- or under-perform relative to the assumptions used in setting price or revenue paths for each regulatory control period.

¹²³ Wellington International Airport Ltd & Ors v Commerce Commission [2013] NZHC 3289 at [256].

Rather, the actual returns earned by regulated providers *ex-post* may be either above or below a normal return.

Application of the financial capital maintenance principle in PQ regulation

- 2.295 In practice, we expect to set the IMs to support the application of this principle at the beginning of each regulatory period:
 - 2.295.1 by providing appropriate compensation to regulated providers for the risks they are required to manage; and
 - 2.295.2 by using estimates or forecasts of cost of capital, prudent expenditure and demand (where relevant), that are free of systematic bias.
- 2.296 The FCM principle, in combination with the revenue cap, roll-over of the RAB and periodic resets, can promote s 162. This is because:
 - 2.296.1 regulated providers will have the opportunity (but not a guarantee) to earn a normal return on their efficient investments, consistent with s 162(a) and (d);
 - 2.296.2 regulated providers will be rewarded for superior performance (and penalised for poor performance), consistent with s 162(b); and
 - 2.296.3 efficiency gains can be shared with end-users when the PQ path is reset, consistent with s 162(c).

Application of the FCM principle in ID regulation

- 2.297 The FCM principle is also relevant when setting the IMs relating to ID regulation.¹²⁴ In specifying the information to be reported, we allow interested persons to assess the extent to which regulated providers' profitability levels are consistent with normal returns and therefore with the outcomes produced in workably competitive markets.

Allocation of risk

- 2.298 Ideally, risks are allocated to regulated providers or end-users depending on which party is best placed to manage them. This is consistent with how risks tend to be allocated in workably competitive markets.
- 2.299 Applying this principle in the context of FFLAS will help us to promote the Part 6 purpose.

¹²⁴ For example, by specifying how the value of the RAB is to be rolled forward and how changes in asset value should be reflected in the measurement of profitability.

- 2.299.1 Regulated providers should bear (at least some of) the costs associated with risks they are best placed to manage, to strengthen their incentives to manage these risks efficiently.¹²⁵ This is consistent with the outcomes in s 162(a) and (b).
- 2.299.2 If regulated providers are not compensated for the risks they bear, this may have a detrimental impact on investment incentives, to the detriment of outcomes in s 162(a).
- 2.299.3 Regulated providers should not be compensated for risks that end-users bear – such an allocation to end-users should result in lower prices to end-users of regulated FFLAS (relative to a situation where the risks were allocated to the regulated providers with the associated compensation for bearing the risks). This is consistent with outcomes in workably competitive markets (and specifically, s 162(b) and (c)).

2.300 Regulated providers could manage risk through:

- 2.300.1 actions to influence the probability of occurrence, where possible;
- 2.300.2 actions to mitigate the costs of occurrence; and
- 2.300.3 the ability to absorb the impact where it cannot be mitigated.

- 2.301 Regulated providers and investors have various risk management tools at their disposal, including diversification, insurance, investment in network strengthening and resilience, hedging, contracting arrangements and delaying certain decisions, like when to make large investments. Some of these tools may have associated costs to regulated providers.
- 2.302 The risk allocation principle helps us determine the regulatory settings that are also consistent with the FCM principle. Once risks are allocated between regulated providers and end-users, we then compensate regulated providers and end-users accordingly through the PQ path we set.¹²⁶
- 2.303 Figure 2.4 below provides an example for how the risk allocation principle can be applied.

¹²⁵ This approach helps avoid the problems associated with moral hazard, ie, a situation where a party will tend to take risks because the costs that could result will not be borne by that party.

¹²⁶ Where end-users bear risks, they are, in effect, compensated through prices that are lower than they would have been had regulated providers borne those risks.

Figure 2.4 Indicative example of allocation of risk in FFLAS regulation

Under a revenue cap with a wash-up mechanism, regulated providers are generally shielded from the risk that the demand for their services might be different from the expected take-up in any given period. In the long-term, however, regulated providers might face a risk that the demand for regulated FFLAS does not allow them to recover their network costs. To the extent that there is no *ex-ante* reason to expect that the demand would be lower or higher than expected (ie, the risk is symmetric), we consider that the regulated providers should bear such demand risk, given they are best placed, and have the strongest incentive, to manage this risk (for example, by setting prices which encourage uptake).

However, in some cases, the demand risk regulated providers face might not be symmetric (depending on the underlying cause for the risk, such as economic stranding from competition from superior technology) and in such circumstances, it might be appropriate for the risk to be shared between regulated providers and end-users. One way such asymmetric risk can be shared between regulated providers and end-users is through the wash-up mechanism allowed by s 196.

- 2.304 It is important that a regulatory regime designed to promote the long-term benefit of end-users does not end up being used to protect regulated providers from competition, or from the effects of competition. This is explicitly recognised in the provisions for determining the initial value of fibre assets set out in the Act, where with respect to financial losses, s 177(4) notes that:

'it is not the intention [...] that regulated fibre service providers should be protected from all risk of not fully recovering those financial losses through prices over time'.

Asymmetric consequences of over-/under-investment

- 2.305 Applying this principle requires us to consider whether there are asymmetric consequences to end-users of under-investment versus over-investment over the long-term. If a material asymmetry exists, this principle allows us to recognise the asymmetry and consider ways to mitigate the risks to end-users (eg, through applying an uplift to the regulatory WACC).
- 2.306 The principle of asymmetric consequences of under/over-investment can help give effect to the outcomes in s 162(a) and (b). In many cases, it involves trading off the costs to consumers of promoting investment (ie, higher prices) against any expected benefits associated with reducing the risk of under-investment (such as improved quality). We discuss the framework we use to consider how the rules we set affect the incentives of regulated providers and how these rules balance the different limbs of the s 162 purpose in the next section.
- 2.307 Although we consider that this principle is relevant to the Part 6 regime, it does not necessarily mean that an asymmetry exists for regulated FFLAS. The application of the principle requires us to assess whether the adverse consequences associated with under-investment in regulated FFLAS by a regulated provider may be greater than the adverse consequences of increasing prices to mitigate this risk.

2.308 We note that the dynamics of the markets regulated under Part 6 differ from the dynamics of those regulated under Part 4. This may, for example, imply that end-users are partially protected from the risk of under-investment by the existence, or potential entry, of competing services. Even where this is not the case, the potential risk of under-investment could be mitigated through one or more different regulatory tools, such as:

- 2.308.1 enforceable quality standards set under PQ regulation;
- 2.308.2 revenue-linked quality schemes implemented in PQ regulation; or
- 2.308.3 adjustments (such as an uplift) to the regulatory WACC.

2.309 In the context of the IMs, the principle of asymmetric consequences of over-/under-investment is relevant mainly to our final decision on whether an adjustment might be required when calculating the regulatory WACC to protect end-users from the risk of under-investment. However, we expect that this principle may also be helpful in future decisions on the quality standards we set under PQ regulation or the performance measures to be reported under ID. We explain how we applied this principle to regulated FFLAS in Chapter 6 where we discuss our cost of capital IM decisions.

Submissions on the key economic principles

- 2.310 All submitters who expressed a view on the three key economic principles discussed above supported their adoption into the Part 6 regime. We received submissions on the key economic principles in our draft decision from Chorus, Enable and Ultrafast Fibre, and L1 Capital. We also received a submission from 2degrees, which supported our view of the status of the key economic principles.¹²⁷
- 2.311 In its submission on our draft decision, Chorus supported the adoption of the three key economic principles and noted that, “These economic principles should be sufficient tools for the Commission to reach regulatory decisions that promote the section 162 purpose and, to the extent the Commission considers it relevant, the objective in section 166(2)(b). [...] A holistic approach is also important when considering the application of these principles.”¹²⁸ Chorus also noted its support for no further economic principles being added.¹²⁹

¹²⁷ 2degrees “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 7.

¹²⁸ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 28 and paragraphs 87-91. See also Chorus “Cross-submission on Fibre input methodologies draft decision” (18 February 2020), paragraph 14.

¹²⁹ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 92.

- 2.312 Enable and Ultrafast Fibre supported the adoption of the three key economic principles and in particular, the adoption of the FCM principle.¹³⁰ In their submission on our emerging views paper, they also noted that, “additional principles for competition and pricing are not required; if introduced they could compromise the outcomes defined in the s 162 purpose statement.”¹³¹
- 2.313 L1 Capital commented on the framework of three economic principles we have adopted and noted that, “L1 believes that this a robust framework that should allow for calculation of fair returns for a fibre operator under the Act.”¹³² We note that we have understood L1 Capital’s reference to ‘fair returns’ to have the same meaning as a ‘normal return’ on capital as defined in paragraph 2.26 above.
- 2.314 In submissions on our emerging views paper, 2degrees, Trustpower and Vocus also supported the three key economic principles we have adopted in our Part 6 framework.¹³³
- 2.315 Further, Vocus noted in its submission on our draft decision that it agreed with “the role of economic principles (with the addition of efficiency incentive and competition principles).”¹³⁴ Vocus did not elaborate on what those “efficiency incentive and competition principles” should be. Nonetheless, we note that the design and implementation of Part 6 regulation introduces incentives for regulated providers to improve their efficiency, consistent with the purpose set in s 162(b), among other incentives promoting the remaining limbs of s 162. We note further that the competition screening approach we have adopted is a tool aimed at helping us give effect to the requirement in s 166(2)(b) to promote workable competition, where relevant, to the long-term benefit of end-users of telecommunications services (see further discussion at paragraphs 2.385-2.395 below).
- 2.316 In its submission on our emerging views paper, Vocus also argued for the adoption of an economic pricing principle and urged us to reassess our decision after the first PQ determination.¹³⁵ In particular, Vocus pointed out that our “position [not to adopt a pricing principle] is inconsistent with adoption of the same principle in relation to airports and gas.”¹³⁶ We do not consider that our decision not to adopt a new

¹³⁰ Enable and Ultrafast Fibre “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 6.1. See also Enable and Ultrafast Fibre “Fibre emerging views submission” (18 July 2019), page 14.

¹³¹ Enable and Ultrafast Fibre “Fibre emerging views submission” (18 July 2019), page 14.

¹³² L1 Capital “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 4.

¹³³ See 2degrees “Fibre emerging views submission” (18 July 2019), pages 1 and 6; Trustpower “Fibre emerging views submission” (18 July 2019), para 3.4.1; and Vocus “Fibre emerging views submission” (18 July 2019), paragraphs 4 and 56-57.

¹³⁴ Vocus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 2.

¹³⁵ Vocus “Fibre emerging views submission” (18 July 2019), paragraphs 61-70.

¹³⁶ Vocus “Fibre emerging views submission” (18 July 2019), paragraph 67.

economic principle related to pricing is inconsistent with our approach under Part 4 regulation. While there is a pricing input methodology in gas regulation, an economic principle does not have the same status as a pricing IM. We explain our reasons for not introducing a pricing IM in the fibre regime at paragraphs 9.173-9.177 of Chapter 9. We note that, as explained above at paragraphs 2.287-2.288, the economic principles we have adopted into the regime are not binding on us or regulated providers – their status is as a tool that increases predictability for stakeholders and helps us make decisions that promote the purposes at s 166(2).

Incentives framework underpinning our application of Part 6 regulation

- 2.317 The regulatory regime, implemented through the IMs, PQ and ID regulation, aims to align the interests of regulated providers with the long-term interest of end-users (as specified in s 162).
- 2.318 As illustrated in the example in Figure 2.5 below, without this alignment unregulated firms with market power have incentives and the ability to increase prices above the competitive level in order to maximise profits to the detriment of end-users. Equally, unregulated firms may deliver FFLAS quality in a way that does not reflect end-users demands, but maximises profits.¹³⁷

Figure 2.5 An unregulated monopolist may charge high prices

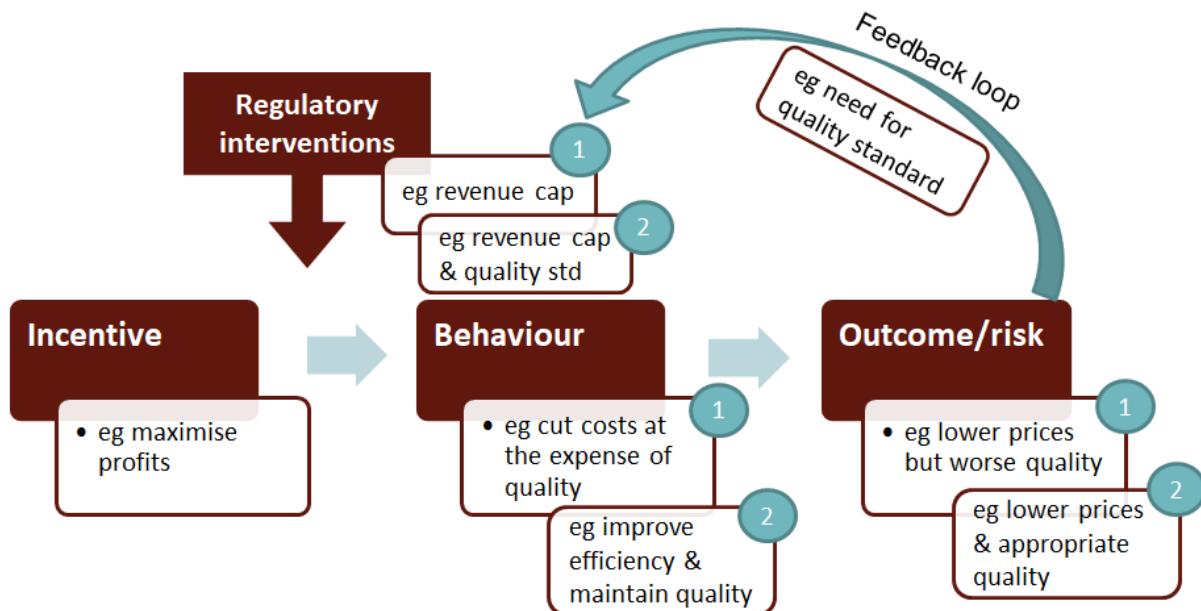


- 2.319 In workably competitive markets, the alignment between the interests of firms and consumers tends to happen naturally, over time. As explained in more detail at paragraphs 2.264-2.271 above, workably competitive markets tend to result in prices trending towards efficient costs and in quality outcomes that reflect end-users' demands, eg, through innovation and product differentiation. We aim to mimic this outcome in markets we regulate by providing the correct incentives for regulated providers to invest in the products and quality that end-users want, while protecting end-users from excessive prices.

¹³⁷ The incentives mentioned in this paragraph relate to privately held profit maximizing firms. These incentives may differ for firms that are consumer owned.

- 2.320 The design and implementation of the regime aims to make it in regulated providers' best interests to behave in a way that promotes the Part 6 purposes. At the core of our incentive regulation, the revenue and price paths both:
- 2.320.1 limit excessive profits (s 162(d)) as would happen in a workably competitive market; and
 - 2.320.2 introduce incentives for regulated providers to improve their efficiency (s 162(b)), including through innovation (s 162(a)).
- 2.321 Our periodic resetting of the price paths ensures that end-users share in the benefits of any efficiency gains (s 162(c)).
- 2.322 We recognise that this type of incentive regulation can result in consequential incentives that are detrimental to end-users, such as quality degradation (s 162(b)), investment hold-up (s 162(a)) or overstated expenditure forecasts (s 162(d)), among others.
- 2.323 Our incentives framework (partly illustrated in Figure 2.6 below) helps us ensure we have a holistic view of how the regime may interact with the incentives faced by regulated providers. It also assists us in identifying risks to end-users through considering the outcomes that may eventuate if regulated providers are able to act in ways that do not align with end-users' interests. This helps us design the regime, and over time, review and refine it.
- 2.324 We hope this framework also increases transparency for stakeholders about our decision-making process. The framework is not limited to our thinking related to the IMs but is meant to be a tool used continuously in the regime design and implementation.

Figure 2.6 A regulated monopolist under a periodic revenue cap can increase profits by improving efficiency or degrading quality



- 2.325 In implementing the regime in a way that gives effect to the purpose of Part 6, we therefore aim to consider the incentives mitigated through the mandatory IMs specified in s 176(1), but also the main consequential incentives on regulated providers. The tools we have include: PQ and ID regulations (eg, minimum quality standards or reporting of quality measures), the IMs (eg, rules on cost allocation or scrutiny of expenditure forecasts), and how we combine all these instruments to determine allowed revenues – the BBM.
- 2.326 Within the wider regime context, IMs provide a number of key ‘inputs’ to ID regulation and PQ regulation. Under s170, we must make determinations that specify how PQ and/or ID regulation applies to regulated providers. Determinations must set out the applicable requirements, time frames and specify the IMs that apply, in accordance with Part 6.
- 2.327 The required IMs specified in s 176(1)(a) will underpin the relevant s 170 determination to determine what is to be disclosed as return on investments under ID regulation, or to determine maximum allowable revenue under PQ regulation. Therefore, it is in combination with each other, and with other requirements in a s 170 determination, that IMs provide incentives for regulated providers to act in a manner consistent with the s 162 purpose statement.

2.328 Although each relevant IM is only part of a wider package, each IM is aimed at addressing specific incentives that unregulated firms with market power might have. Consequently, certain of the regulatory objectives in s 162(a) to (d) are more relevant to an individual IM than others.

2.328.1 The asset valuation IM promotes the long-term benefits of FFLAS end-users by ensuring that the allocated RAB appropriately reflects assets used in providing regulated FFLAS (see Chapter 3).

2.328.1.1 The calculation of the initial value of the RAB (ie, at the beginning of the Part 6 regime) which is underpinned by the asset valuation IM decisions, in conjunction with the requirements in s 177, establishes a baseline for the level of acceptable profits for a regulated provider. It therefore contributes to ensuring that regulated providers are limited in their ability to extract excessive profits from end-users in future, which is relevant to s 162(d).¹³⁸

2.328.1.2 The way that the value of the RAB is rolled forward affects how regulated providers recover the investments that they make, which in turn reinforces the incentives to invest that they face, consistent with s 162(a).

2.328.2 The cost allocation IM has a role in mitigating the incentives that regulated providers might have to recover a disproportionate share of any shared costs from FFLAS end-users (and thus, increase prices for FFLAS) (see Chapter 4). In particular, the way that costs are allocated between regulated FFLAS and services that are not regulated FFLAS:

2.328.2.1 has an important bearing on how efficiency gains are shared with FFLAS end-users over time, which is relevant to s 162(c);

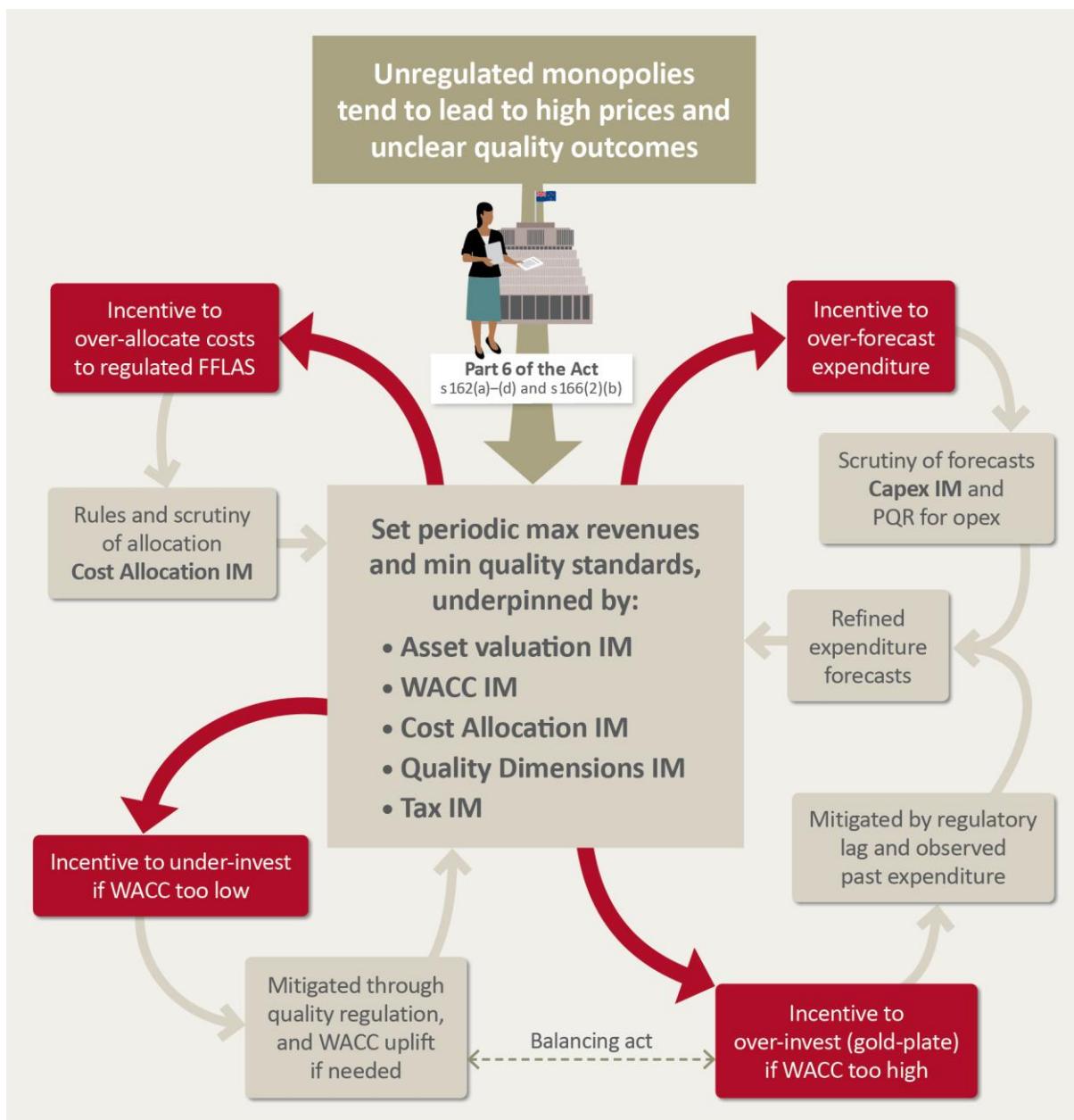
2.328.2.2 is relevant to limiting the ability of regulated providers to extract excessive profits, which gives effect to s 162(d); and

2.328.2.3 can affect the competitive position of regulated providers in other markets they operate if a disproportionate share of any shared costs is allocated to regulated FFLAS. Consequently, the cost allocation IM also has relevance for achieving the objective in s 166(2)(b).

¹³⁸ Note that s 176(3) requires that any methodologies for the valuation of assets, including depreciation, and treatment of revaluations, that relate to establishing the initial value of fibre assets (as defined in s 177) must be determined in accordance with s 177.

- 2.328.3 The quality IM will underpin the quality standards that might be set under PQ regulation and the quality performance measures and statistics that regulated providers might be required to report under ID. It therefore contributes to ensuring that regulated providers have incentives to invest and to supply regulated FFLAS of a quality that reflects end-user demands, which is relevant to s 162(b) (see Chapter 5).
- 2.328.4 The cost of capital IM has a role in balancing the following incentives (see Chapter 6).
- 2.328.4.1 In the context of PQ regulation, this IM helps ensure that regulated providers have incentives to innovate and invest by allowing a regulated return that is similar to that of investments of comparable risk in a workably competitive market (s 162(a)); and on the other hand, helps limit regulated providers' incentive and ability to extract excessive profits (s 162(d));
 - 2.328.4.2 In the context of ID regulation, this IM helps us and others monitor whether financial capital is being maintained, which is relevant to s 162(a), and whether regulated providers are limited in their ability to extract excessive profits, which is relevant to s 162(d).
- 2.328.5 The Chorus capex IM will have an impact on a regulated provider's incentives to invest (s 162(a)), to improve efficiency and to deliver quality that reflects end-user demands (s 162(b)). It will also limit their ability to extract excessive profits (s 162(d)) (see Chapter 7).
- 2.328.6 The treatment of tax also has an impact on whether regulated providers are limited in their ability to extract excessive profits from end-users in future, which is relevant to s 162(d) (see Chapter 8).
- 2.329 In line with the purpose of Part 6, the regulatory rules introduced through the IMs (and later through our PQ and ID determinations) aim to better align the incentives of regulated providers with the long-term interests of end-users.
- 2.330 Figure 2.7 provides an example of how the IMs interact with the main consequential incentives that might arise for regulated providers subject to PQ regulation.
- 2.331 Figure 2.7 is only an example of how we apply our incentive framework and does not capture all consequential incentives that regulated providers might face.

Figure 2.7 An example of how the regime mitigates the main consequential incentives caused by PQ regulation



2.332 For regulated FFLAS, the relationships depicted in the above figure are also affected by ID and competition. The latter is explicitly recognised by the requirement in s 166(2)(b) of the Act for our decisions to consider the promotion of workable competition in telecommunications markets for the long-term benefit of end-users, where relevant. Some examples of these further interactions are the following.

2.332.1 The repeated nature of regulation underpinned by ID reporting requirements allows us to observe expenditure outturns over time. This lessens the incentive, and therefore risk, of regulated providers gaming the expenditure forecasts.

- 2.332.2 The incentives on regulated providers to behave in ways that are not in the long-term interest of end-users are mitigated by greater competitive pressure. Greater competitive pressure, when present, thereby lessens the need for regulation. For example, when regulated providers face some competition the incentive on regulated providers to under-invest at the expense of quality will be weakened, because the regulated provider would risk losing unsatisfied customers to competing firms who supply products based on alternative technologies.
- 2.333 Each of our IM decisions explain how the IM in question considers the relevant incentives and how it can help mitigate the main relevant risks to end-users.

Submissions on the incentive framework

- 2.334 All stakeholders who expressed a view on the incentive framework in their submissions supported, or did not object to, the framework. The following stakeholders commented on the incentive framework.
- 2.334.1 2degrees supported the inclusion of the incentive framework and stated, “The incentive framework makes explicit the framework the Commission already applies under Part 4 Commerce Act.”¹³⁹
- 2.334.2 Vector likewise noted that our framework “relies on incentive regulation for Chorus and LFCs to deliver outcomes like [those] that are produced in workably competitive markets. This contrasts with other more direct forms of utility regulation such as rate-of-return regulation where the annual reconciliation of costs and revenues provides limited incentive on the service provider to organically realise efficiencies over time.”¹⁴⁰
- 2.334.3 Atlas Infrastructure noted that “[t]he most important role of a successful regulatory framework is not that it is necessarily theoretically perfect in all regards, but that it should reinforce the alignment of interests between the company’s management, shareholders and stakeholders (customers and government).”¹⁴¹
- 2.334.4 Chorus submitted that “[i]ncentive-based regulation is preferable to outcome-based regulation” and “in general, we endorse the

¹³⁹ 2degrees “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 7.

¹⁴⁰ Vector “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraphs 6-7.

¹⁴¹ Atlas Infrastructure “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 2.

Commission’s traditional approach of preferring incentives rather than specifying outcomes.”¹⁴² However, Chorus also:

- 2.334.4.1 expressed concerns that “aspects of the draft decisions, including the approach to quality standards and capex, appear more consistent with an outcome-based regulation approach than true incentive-based regulation”;¹⁴³ and
 - 2.334.4.2 argued that “[t]he incentives framework discussion is focussed on the regulated supplier’s behaviour. The Commission also needs to consider the incentives that may be created for other parties.”¹⁴⁴
- 2.335 In response to Chorus’ submission, we note that the purpose of the Part 6 regime is to introduce incentives for regulated suppliers to behave in ways that are consistent with the outcomes produced in workably competitive markets. It is therefore appropriate to focus the incentives discussion on regulated suppliers’ behaviour. We have responded to Chorus’ concerns on specific aspects of our draft decision in the relevant technical chapters of this paper.

IMs under Part 6

Purpose of IMs and the promotion of certainty

- 2.336 Subpart 3 of Part 6 and s 164 set out what IMs are, how they are determined and how they apply. Section 174 provides that the purpose of IMs is:¹⁴⁵

to promote certainty for regulated fibre service providers, access seekers, and end-users in relation to the rules, requirements, and processes applying to the regulation, or proposed regulation, of fibre fixed line access services under [Part 6].

The importance of a predictable regulatory environment

- 2.337 Providing a stable and predictable regulatory framework was an important objective of Parliament in introducing Part 6.¹⁴⁶ This was also a key reason for the introduction of Part 4.¹⁴⁷
- 2.338 A certain and predictable regulatory environment is important because it assists regulated providers to make investments with increased confidence that they can

¹⁴² Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraphs 63-65.

¹⁴³ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 67.

¹⁴⁴ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 93.2.

¹⁴⁵ This definition is based on s 52R of the Commerce Act.

¹⁴⁶ Telecommunications (New Regulatory Framework) Bill 2017 (293–1) (explanatory note) at 1.

¹⁴⁷ *Vector Ltd v Commerce Commission* [2012] NZSC 99, [2013] 2 NZLR 445 at [63].

expect to make a normal return on the investment made. This in turn provides a benefit to end-users through a lower required cost of capital for investment which delivers a reliable service at a quality demanded by end-users. Increased certainty also benefits access seekers and end-users who may make investment decisions based on their expectations of the way FFLAS will be regulated.

- 2.339 While increased certainty is important, Part 6 does not aspire to absolute certainty.¹⁴⁸ The Supreme Court has accepted that Parliament's intention in passing Part 4 was that increased certainty, timeliness and incentives to invest would develop over time, as the regime "beds in".¹⁴⁹ We consider that a similar view should be taken in the context of Part 6 although we acknowledge that we have the benefit of experience with Part 4.

- 2.340 In *Commerce Commission v Vector Ltd* the Court of Appeal stated:¹⁵⁰

We accept that an important purpose of Part 4 was to create incentives for suppliers to undertake long-term investments in infrastructure and that Parliament saw certainty as an important mechanism in that context. ... : s 52A(1) describes the purpose of Part 4 as being "to promote the long-term benefit of consumers in markets [where there is little or no present or likely competition] by promoting outcomes that are consistent with outcomes produced in competitive markets...". The reference to "promoting outcomes produced in competitive markets" assists in placing the concept of certainty in its proper context. Participants in competitive markets generally face conditions of considerable uncertainty: that is the nature of competition. In the present context, while Parliament undoubtedly saw certainty as being important, particularly in terms of encouraging investment, it was not identified as the predominant consideration.

- 2.341 Some uncertainty remains inevitable. As the same Court of Appeal observed, certainty is a relative rather than an absolute value:¹⁵¹

...there is a continuum between complete certainty at one end and complete flexibility at the other. The question is where Parliament has drawn the line. Clearly Parliament did not accord the Commission absolute flexibility, nor did it require absolute certainty in the regulatory regime. The requirement for the publication of input methodologies was intended to promote certainty in relation to the matters dealt with in s 52T(1). Against that framework, however, the Commission still has to make regulatory decisions, including as to price setting under s 53P(3)(b). Parliament must have considered that, as the Commission does so, further certainty will emerge. Moreover, the Commission's extensive consultation obligations under Part 4 are also likely to produce further certainty over time.

¹⁴⁸ Wellington International Airport Ltd & Ors v Commerce Commission [2013] NZHC 3289, at [214].

¹⁴⁹ *Vector Ltd v Commerce Commission* [2012] NZSC 99, [2013] 2 NZLR 445, at [64].

¹⁵⁰ *Commerce Commission v Vector Limited* [2012] NZCA 220, at [34].

¹⁵¹ *Commerce Commission v Vector Limited* [2012] NZCA 220, at [60].

- 2.342 While certainty is not the predominant consideration, it will inform our approach to setting the IMs consistent with the views of the High Court in the Part 4 IM merits appeal:¹⁵²

Both the s 52A purpose, of the long-term benefit of consumers and the s 52R purpose, of promoting certainty for suppliers and consumers, are relevant. However, we consider that in this context the s 52R purpose of certainty is conceptually subordinate to the s 52A purpose of the long-term benefit of consumers. We say that because promoting the long-term benefits of consumers in accordance with s 52A is the central purpose of Part 4 as a whole. IMs must be designed with that in mind. Subject to that, a materially more certain IM is to be preferred to a less certain IM.

- 2.343 We consider that the above reasoning, while expressed in the context of Part 4, is also applicable when setting the IMs. While we have the benefit of learnings from applying Part 4, the telecommunications industry has distinct features that mean that the regime will need space to evolve over time.

The role of IMs in promoting certainty

- 2.344 Input methodologies are a key tool within Part 6 for helping to promote regulatory certainty. This is reflected in the purpose statement for IMs in s 174, which aims to promote certainty for regulated providers, access seekers and end-users in relation to the rules, requirements and processes applying to regulation. Section 176(2) also requires every IM, as far as reasonably practicable to:

- 2.344.1 set out the IMs in sufficient detail so that each affected regulated provider is reasonably able to estimate the material effects of the methodology;
- 2.344.2 set out how we intend to apply the IM to FFLAS; and
- 2.344.3 be consistent with the other IMs that relate to FFLAS.

- 2.345 To that end, “as far as is reasonably practical”, IMs set out relevant matters in sufficient detail upfront, ie prior to being applied by regulated providers or the Commission. In this way, IMs constrain our evaluative judgements in subsequent regulatory decisions (such as the setting and resetting of PQ paths and the setting of ID requirements) and enhance predictability.¹⁵³

- 2.346 The focus of s 174 is on certainty “in relation to the rules, requirements, and processes applying to the regulation”. This can be contrasted with a focus on certainty of outcomes, while noting that “as far as reasonably practical”, “every input methodology must contain sufficient detail that so that each affected

¹⁵² Wellington International Airport Ltd & Ors v Commerce Commission [2013] NZHC 3289, at [165].

¹⁵³ Wellington International Airport Ltd & Ors v Commerce Commission [2013] NZHC 3289, at [213].

regulated fibre service provider is reasonably able to estimate the material effects of the methodology on the provider”.

- 2.347 By way of example, the cost of capital IM does not ‘hard code’ the precise cost of capital that we will apply in PQ and ID determinations (doing so would not best promote the s 162 purpose). Rather, the cost of capital IM seeks to provide certainty about the formula we will use in calculating the cost of capital. The precise values of some parameters (such as government bond rates) will be established at the time the PQ or ID determination is made. This approach provides certainty about the rules (ie, the approach to calculating the cost of capital), while not providing absolute certainty about the outcome (the precise cost of capital that we will use for PQ and ID determinations at a future date). The regulated provider is thus able to reasonably estimate the material effects of the IM on them.
- 2.348 That the IMs are not intended to provide absolute certainty is also highlighted by ss 181 and 182, which provide for changes to the IMs and include a requirement that they must be reviewed at least every seven years. In deciding whether an amendment to an IM is necessary, we must give effect to the purposes described in s 166, and while the objective of promoting certainty in s 174 is relevant to our consideration of IM amendments, s 174 does not prevent us from amending the IMs where this is necessary to promote the s 166 purposes.
- 2.349 However, the certainty provided by the IMs can also be affected by the approach taken to amending them. Our experience in relation to Part 4 has been that it is necessary, when undertaking an amendments process under s 52X (the equivalent of s 181), outside the review cycle mandated by s 52Y (the equivalent of s 182), to carefully assess what amendments are most appropriately considered through the s 181 process, as opposed to being considered through a review of IMs under s 182. That assessment has been made in light of the purpose of Part 4 (the equivalent of s 162) and the purpose of the IMs (the equivalent of s 174).
- 2.350 On the one hand, it is important that the IMs are appropriate going into the reset of a PQ path, since, as discussed below, where we amend the IMs, the amended IMs will not affect the PQ path until the next regulatory period. This preserves the certainty created by having IMs set in advance of their application by us in making PQ determinations. On the other hand, in determining the scope of a s 181 amendments process, we are mindful that being overly willing to entertain amendments as part of that s 181 amendments process may have an unduly detrimental effect on:
 - 2.350.1 the role that predictability plays in providing suppliers with incentives to invest in accordance with s 162(a); and

- 2.350.2 the role that the IMs play in promoting certainty for suppliers and consumers in relation to the rules, requirements, and processes in advance of being applied by us and suppliers (for example, in setting the PQ path).
- 2.351 Based on our Part 4 experience, we expect that it will not generally be appropriate to consider fundamental changes to the IMs as part of a s 181 amendments process. By fundamental changes, we primarily mean significant changes to the IMs listed in s 176(1)(a) - being the cost of capital, valuation of assets, allocation of common costs, and treatment of taxation. These IMs provide the foundational building blocks used to set PQ paths. While we might consider such amendments in exceptional circumstances, we consider that they will normally be more appropriately considered as part of the next s 182 review of the IMs. Putting this another way, we should not lightly let the s 181 amendment process override the staggered regulatory cycle based on s 182 reviews.
- 2.352 By contrast, we expect that other types of amendments, such as amendments to the regulatory processes and rules IM or Chorus capex IM, may be necessary to give effect to incremental enhancements in the way a PQ path is set and so, in a practical sense, will often lend themselves to being considered in parallel with a PQ reset process.
- 2.353 As such, we expect that the s 181 amendment process will typically be used to consult on proposed changes:
- 2.353.1 to support implementation of incremental improvements to the way the PQ path is set; or
 - 2.353.2 to enhance certainty about the rules, or correct errors, ahead of a PQ path reset.

The IMs are not the only way in which certainty is promoted under Part 6

- 2.354 The IMs are not the only way in which certainty is promoted within the Part 6 regime. For example, PQ paths also help promote certainty for regulated providers by ‘locking in’ the maximum revenues and quality standards for regulated providers for a period of three to five years.¹⁵⁴ Once set, a PQ path can only be reopened for

¹⁵⁴ Section 207.

one of the reasons specified in the IMs.¹⁵⁵ Further, once set for a regulatory period, a PQ path cannot be reopened to take account of subsequent changes to the IMs.¹⁵⁶

- 2.355 Giving effect to the s 162 purpose in our decision making under Part 6 (including in relation to setting the IMs) may also require, where relevant, recognition of the role that predictability plays in providing regulated providers with incentives to invest in accordance with s 162(a).
- 2.356 Similarly, while s 174 concerns certainty of rules rather than certainty of outcomes, we consider that conditional predictability of outcomes is nevertheless good regulatory practice. As noted by Professor Yarrow in the context of Part 4, regulators:¹⁵⁷

should change and adapt in ways that are predictable to market participants conditional on available information about the changes in the economic environment to which the regulator is responding.

- 2.357 The various process requirements on the Commission, in making decisions in relation to Part 6,¹⁵⁸ also enhance certainty.
- 2.358 Together with the IMs, the features of Part 6 described above contribute to the regulatory certainty sought by Parliament in introducing Part 6.

Definition of input methodologies

- 2.359 ‘Input methodology’ is defined broadly in s 164 as:

a description of any methodology, process, rule, or matter that includes any of the matters listed in section 176 and that is published by the Commission under section 180

- 2.360 This definition is elaborated on in s 176:

- (1) The input methodologies relating to fibre fixed line access services must include, to the extent applicable to the type of regulation under consideration,—
 - (a) methodologies for evaluating or determining the following matters in respect of the supply of the fibre fixed line access services:

¹⁵⁵ Section 176(1)(c)(ii) requires us to set specific rules in the IMs for when a PQ path may be reconsidered within a regulatory period.

¹⁵⁶ Except, as provided by s 204, where an IM changes as a result of an appeal under s 183 in a way that would have resulted in a materially different path being set had the changed methodology applied at the time the PQ path was set.

¹⁵⁷ George Yarrow in George Yarrow et al "Review of Submissions on Asset Valuation in Workably Competitive Markets a Report to the New Zealand Commerce Commission" (November 2010), Annex 2, paragraph 2.6.

¹⁵⁸ See, for example, ss 179, 181 and 203.

- (i) cost of capital;
 - (ii) valuation of assets, including depreciation, and treatment of revaluations;
 - (iii) allocation of common costs (for example, between activities, businesses, access seekers, regulated services, or geographic areas);
 - (iv) treatment of taxation; and
- (b) quality dimensions and
- (c) regulatory processes and rules, such as—
- (i) the specification and definition of prices, including identifying any costs that can be passed through to prices (which may not include the legal costs of any appeals against input methodology determinations under this Part); and
 - (ii) identifying circumstances in which a price-quality path may be reconsidered within a regulatory period; and
- (d) methodologies for capital expenditure projects, including the following:
- (i) requirements that must be met by the regulated fibre service provider, including the scope and specificity of information required, the extent of independent verification and audit, and the extent of consultation and agreement with other parties (including access seekers or end-users); and
 - (ii) the criteria the Commission will use to evaluate capital expenditure proposals; and
 - (iii) time frames and processes for evaluating capital expenditure proposals, including what happens if the Commission does not comply with those time frames.
- (2) Every input methodology must, as far as is reasonably practicable,—
- (a) set out the matters listed in subsection (1) in sufficient detail so that each affected regulated fibre service provider is reasonably able to estimate the material effects of the methodology on the provider; and
 - (b) set out how the Commission intends to apply the input methodology to fibre fixed line access services; and
 - (c) be consistent with the other input methodologies that relate to fibre fixed line access services.
- (3) Any methodologies referred to in subsection (1)(a)(ii) that relate to establishing the initial value of fibre assets (as defined in section 177) must be determined in accordance with section 177.

How IMs apply

2.361 Section 175 provides that:

A relevant input methodology relating to the supply of fibre fixed line access services must be applied—

- (a) by each relevant regulated fibre service provider in accordance with the relevant section 170 determination; and
- (b) by the Commission in recommending, deciding, or determining—

- (i) how regulation under this Part should apply to fibre fixed line access services; or
 - (ii) the prices or quality standards applying to fibre fixed line access services.
- 2.362 Section 176(1) provides that the IMs must include certain matters “to the extent applicable to the type of regulation”. Therefore, and in accordance with s 176(2)(b), the IM determinations will specify how the relevant IMs apply in respect of each of the two types of ‘regulatory instruments’ under s 170: PQ and ID paths.
- 2.363 We discuss the relationship of IMs to PQ and ID regulation in more detail below.
- Setting IMs**
- 2.364 Section 178(1) requires us to determine IMs not later than the implementation date.
- 2.365 Section 176(1) provides that the IMs must include the following matters (to the extent applicable to the type of regulation under consideration):
- 2.365.1 cost of capital;
 - 2.365.2 asset valuation;
 - 2.365.3 allocation of common costs;
 - 2.365.4 treatment of taxation;
 - 2.365.5 quality dimensions,¹⁵⁹
 - 2.365.6 regulatory processes and rules; and
 - 2.365.7 methodologies for capital expenditure projects.
- 2.366 While we have only determined the mandatory IMs for the first regulatory period, we may, at any time after the implementation date, determine further IMs.¹⁶⁰
- 2.367 Section 176 provides us broad discretion as to the content and structure of IMs. In determining the IMs, we have regard to all relevant considerations, including:
- 2.367.1 the matters described in s 166, which includes the Part 6 purpose (s 162);
 - 2.367.2 the purpose of IMs as set out in s 174;

¹⁵⁹ Under Part 4, there is no requirement to determine an IM for quality dimensions.

¹⁶⁰ S 178(2).

- 2.367.3 the purpose of ID regulation (s 186) and PQ regulation (s 192) (as applicable); and
- 2.367.4 any views received from interested parties within any timeframes we set.¹⁶¹
- 2.368 The IMs that apply to a regulated provider (as well as how they apply) will depend on the type or types of regulation they are subject to. We have therefore specified how the relevant IMs apply in respect of ID regulation and PQ regulation.
- Submissions on the level of prescription in the IMs*
- 2.369 We received submissions on our draft decision about the general level of prescription of the IMs.
- 2.370 In their submissions on our draft decision, Enable, Ultrafast and Northpower agreed with the level of prescription for the IMs. Enable and Ultrafast said “a principle-based regime reserving (subject to clear disclosure obligations) flexibility for LFCs to respond appropriately is best suited to accommodate ongoing change in market circumstances.”¹⁶² Northpower supported IMs which are principle-based rather than prescriptive. It said: “This will allow the IMs to remain stable, while specific implementation of those rules can evolve with the market as necessary.”¹⁶³
- 2.371 In their submissions on our draft decision, 2degrees and Nova considered our IMs were not prescriptive enough, both expressing their view that this favoured Chorus, with 2degrees further saying it created a significant and material risk that Chorus won’t be limited in their ability to extract excessive profits.¹⁶⁴
- 2.371.1 In its submission on our draft decision Nova said “the general approach taken by the Commission throughout the Draft Decision documents is not overly prescriptive, which firmly favours Chorus in many different respects. Greater prescription (especially in the Quality Dimensions IM) will provide greater certainty for both RSPs and end-users.”¹⁶⁵
- 2.371.2 In its cross-submission on our draft decision 2degrees said “...the Commission has opted for a higher level, less prescriptive approach that will be easier to implement within the statutory timeframe. The less

¹⁶¹ S 179(2)(d).

¹⁶² Enable and Ultrafast “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 1.2.

¹⁶³ Northpower “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 8.

¹⁶⁴ 2degrees “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 2.

¹⁶⁵ Nova “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 5(a).

prescriptive approach will favour Chorus and will not satisfy the legislative purpose of limiting their ability to extract excessive profits. A number of the draft decisions could result in regulated fibre prices which include ‘generosities’.”¹⁶⁶

Submissions on setting the IMs

- 2.372 We also received submissions on our draft decision about the IMs we should set.
- 2.373 We received submissions on our draft decision from several stakeholders who disagreed with our decisions to not set other, non-mandatory IMs, and to not include certain matters in the mandatory IMs. For example, Vocus and 2degrees suggested our decisions on independent verification in the Chorus capex IM were insufficient. 2degrees said that “[t]he lack of oversight in the transition phase reinforces the concerns that 2degrees and others have raised, that information asymmetries and limited oversight of Chorus given time pressures will work in Chorus’ favour, particularly given the “immaturity of the new fibre regulatory framework [...]”.”¹⁶⁷
- 2.374 We consulted in our emerging views paper on the question of the extent of our power to set IMs.¹⁶⁸ In doing so, we had regard to requests from stakeholders for a fibre unbundling IM, which Vodafone stated is critical to the long-term success of the regime.¹⁶⁹ We also considered submissions, including from Spark, Vector and Nova, that requested IM guidance on matters such as equivalence of inputs and non-discrimination.¹⁷⁰
- 2.375 In its submission on our draft decision, Vodafone restated its view on our emerging views paper, that the Commission should determine a fibre unbundling IM.¹⁷¹ Vodafone asked the Commission to consider setting “specific requirements for the LFCs to disclose key information on unbundling” as part of ID regulation and to be used as a basis for making further regulatory recommendations.¹⁷²

Level of prescription

- 2.376 We did not decide a level of prescription across the IMs collectively. The decisions and detail of each IM has been decided based on the requirements of the legislation

¹⁶⁶ 2degrees “Cross-submission on Fibre input methodologies draft decision” (18 February 2020), page 3.

¹⁶⁷ 2degrees “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 13.

¹⁶⁸ Commerce Commission “Fibre Regulation: Emerging Views” (20 May 2019), paragraphs 94-102.

¹⁶⁹ Vodafone “Fibre emerging views submission” (18 July 2019), page 4.

¹⁷⁰ Spark “Fibre emerging views submission” (18 July 2019), page 17; Vector “Fibre emerging views submission” (18 July 2019), paragraph 5 of Appendix 1; and Nova “Fibre emerging views cross-submission” (12 August 2019), paragraph 20.

¹⁷¹ Vodafone “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 11.

¹⁷² Vodafone “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 11. See also Vodafone “Fibre emerging views submission” (18 July 2019), page 14.

and in consultation with stakeholders through the consultation processes. We respond to submissions on our draft decision on the level of prescription for specific issues raised for the IMs in the relevant sections of this paper. For example, see paragraphs 3.301-3.309 of the asset valuation IM and paragraphs 4.44-4.54 of the cost allocation IM that discuss the level of prescription for those IM decisions.

Setting other IMs

- 2.377 As discussed in our draft decisions and as set out at paragraph 2.366 above, we have decided to only set the mandatory IMs required under s 176.
- 2.378 Section 175 of the Act specifies that a relevant IM relating to the supply of FFLAS must be applied by each relevant regulated fibre service provider in accordance with the relevant s 170 determination, and by the Commission in recommending, deciding or determining how regulation under Part 6 should apply to FFLAS, or the prices or quality standards applying to FFLAS. In our draft decision we expressed the view that our power to set IMs was limited to IMs directly related to the implementation of PQ regulation and ID regulation.
- 2.379 Having considered Vodafone's submission on our draft decision, in particular, we accept that our power to set IMs may extend to IMs that support our role in making recommendations, including under s 209 in relation to an unbundled fibre service. We also agree with Vodafone that unbundling will be relevant to ID regulation. However, we do not consider that it is appropriate to set an IM for the purpose of gathering information about unbundling at this stage. We have decided only to set the mandatory IMs at this stage.
- 2.380 In considering whether it is a necessary and appropriate use of our resources to set an unbundling IM at this stage, we note that a number of tools are available to the Commission to collect information about unbundling.
 - 2.380.1 The Commission has enforcement and information gathering powers in relation to the Fibre Deeds made under Part 4AA of the Act.
 - 2.380.2 Section 188(2)(d) includes a broad power for the Commission to require disclosure of contracts under ID regulation. Using these powers, we may collect contract information on unbundled fibre services, and potentially further information.¹⁷³ We will consider whether information relating to fibre unbundling is necessary for ID in accordance with the purposes of ss 186 and 166.

¹⁷³ Clause 10 of Schedule 1AA provides LFCs are not required to comply with any information disclosure requirements under subpart 3 of Part 4AA in respect of any period during which the LFC is also subject to information disclosure regulation under Part 6. We interpret this to mean that Part 6 regulation may require the disclosure of information relating to the Fibre Deeds, including fibre unbundling.

2.380.3 We have the power to collect information as part of conducting a review under s 209, including for the purpose of deciding whether to make a recommendation that an unbundled fibre service be declared under s 229.

2.380.4 We can consider determining a further unbundling IM at a later stage.

2.381 For these reasons we consider that it would not be appropriate to determine an unbundling IM at this stage.

2.382 Our decision to only set the mandatory IMs remains unchanged from our draft decision. We respond to submissions on our draft decisions on specific matters that we did not include in the IMs in the relevant technical chapters of this paper. For example, at paragraphs 7.340-7.350 we discuss our decisions regarding independent verification in the Chorus capex IM.

Approach to applying s 166(2)(b) in setting the IMs

2.383 Section 166(2)(b) provides that when we make a recommendation, determination or decision, we must, in addition to giving effect to the s 162 purpose, also give effect to the extent that we consider it relevant, to the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services.

2.384 We determined that the most appropriate way to give effect to s 166(2)(b) at this stage of our regulatory development process is to apply a high-level ‘competition screening’ by considering whether each IM decision has the potential to promote or limit competition in any telecommunications market. Specifically, we have considered whether each IM decision:

2.384.1 has a role in mitigating risks to competition at any telecommunications market level; and/or

2.384.2 could be used to promote competition at a given market level that would result in expected net benefits to telecommunications end-users in the long-term.

2.385 The status of this ‘competition screening’ approach in our decision-making process is similar to that of the key economic principles. The approach is a tool, not a rule, and is intended to:

2.385.1 help us make better decisions that give effect to the requirement of s 166(2)(b);

2.385.2 help us explain our decisions; and

2.385.3 provide predictability to stakeholders.

- 2.386 The considerations identified above for our ‘competition screening’ may change in future and may be tailored to the type of regulation – eg, a more in-depth competition assessment might be required for some decisions under PQ regulation than for decisions under ID. Where we identify additional considerations relevant to our ‘competition screening’, we will be transparent with stakeholders about the considerations identified and how we have assessed their relevance.
- 2.387 Using the approach described above, we consider that the requirement to promote competition to the long-term benefit of end-users, per s 166(2)(b), has implications for the following IMs.
- 2.387.1 **Asset valuation IM:** the rules we have set for the treatment of assets that might be affected by future deregulation (of either individual services or geographic areas) could have an impact on the development of competition in areas/markets that are deregulated. Our final decision on the treatment of assets that might be affected by future deregulation is explained in Chapter 3 at paragraphs 3.367-3.394.
- 2.387.2 **Cost allocation IM:** the rules on how to allocate costs between regulated FFLAS classes and services that are not regulated FFLAS, and between different product groups of regulated FFLAS, can affect the ability of regulated providers to compete in the markets they operate. In Chapter 4 we explain our reasons for the specific rules we have set for cost allocation between regulated FFLAS classes and services that are not regulated FFLAS (at paragraphs 4.55-4.168), and for cost allocation between different FFLAS product groups (at paragraphs 4.169-4.202). The following are some examples.
- 2.387.2.1 If Chorus is able to allocate the majority of the costs shared between regulated FFLAS and its copper network to regulated FFLAS this could have an impact on the prices they could charge for copper services in the future. Similarly, if Chorus is able to allocate the majority of the costs shared between PQ FFLAS and ID-only FFLAS to PQ FFLAS, this could affect the prices they could charge for regulated FFLAS in the ID-only areas.
- 2.387.2.2 The rules we have set on how to allocate costs between different product groups of regulated FFLAS could allow us to identify any potential anti-competitive behaviour. In particular, under ID regulation we could monitor the extent to which FFLAS prices are set in line with costs.

- 2.387.2.3 Cost allocation rules could also help support a future move to cost-based pricing for the anchor service, DFAS and/or any other FFLAS that we might consider appropriate.
- 2.387.3 **Chorus capex IM:** The reasons for our final decisions related to capex approvals are explained in Chapter 7. In summary we note the following.
- 2.387.3.1 The rules for capital expenditure approvals could have an impact on competition through mitigating the risk of overbuilding or pre-emptive building in markets that might have a negative impact on potential upstream competition, while supporting downstream competition.
 - 2.387.3.2 The rules set for approving (capitalised) incentive payments (also known as retention capex) or DFAS-related investments could impact on competition between different platforms.
- 2.387.4 **Quality IM:** the quality dimensions and level of prescription we have determined may help promote competition in other telecommunications markets by underpinning performance measures and quality standards that encourage regulated FFLAS to be provided at a quality that reflects both access seeker and end-user demands. Specifically, the quality dimensions in our quality IM acknowledge that regulated FFLAS may be used as inputs for other services (eg, DFAS connecting mobile cell sites is an input to mobile services) that compete with FFLAS-based services downstream. The reasons for our final decisions related to quality are explained in Chapter 5.
- 2.388 Because of the importance of this topic to the Part 6 regime, we asked our advisory panel to provide an opinion on a framework we could use to determine whether it is relevant to promote workable competition in a given market and if so, when it would be relevant to do so.¹⁷⁴ The report outlines the steps that we could take if we were to undertake a fully-fledged competition analysis in deciding whether:
- 2.388.1 a market has characteristics that might be conducive to the emergence of competition and thus, whether we might have a role in promoting competition in that market; and/or
 - 2.388.2 a market might be sufficiently competitive that it could be a candidate for deregulation in the future.

¹⁷⁴ Our expert advisory panel for fibre comprises Ingo Vogelsang and Martin Cave. See Attachment B.

- 2.389 The report is published on our website.¹⁷⁵
- 2.390 We took note of the framework proposed by the advisory panel in developing the practical steps for our ‘competition screening’ that gives effect to s 166(2)(b) for the IMs. However, as explained below, we have not directly applied the framework proposed by the advisory panel to our IM decisions. We note that we may give regard to the framework (or a subset of the steps suggested) in future; for example, when undertaking deregulation reviews under s 210.
- 2.391 We note that the fully-fledged competitive analysis of all potentially relevant markets outlined in the framework that was developed by the advisory panel may, as acknowledged in the panel’s report, require an excessive amount of resources, including a very substantial information gathering exercise. We concluded that the time and cost that we and stakeholders would have to spend on a full application of the framework in the process of setting the IMs is not likely to be commensurate with the potential benefits to end-users from such an exercise.
- 2.392 We note further that New Zealand’s regulatory landscape promotes competition in downstream retail telecommunication markets that rely on FFLAS as an input by requiring the vertical separation of Chorus and the other LFCs. This requirement reduces the incentives that a vertically integrated monopolist could have to distort competition in downstream markets.
- 2.393 The purpose of the Part 6 regime, including specifically under s 162, is to establish wholesale access to FFLAS on terms that mitigate the risks associated with monopoly power at the wholesale level, and consequently to promote the ability of an access seeker to compete on the merits in downstream telecommunications markets through:
- 2.393.1 access prices that are not excessive (s 162(b); (c) and (d)); and
 - 2.393.2 a resilient and ‘fit for purpose’ FFLAS network supported by continued incentives for regulated providers to invest and innovate on the network, including in response to developments in downstream telecommunication markets (s 162(a) and (b)).
- 2.394 Therefore, adopting additional regulatory interventions aimed at further promoting competition in downstream markets or in an upstream market (such as competition at layer 2 of the fibre network or layer 1 infrastructure competition) requires a balancing act to ensure that such additional competition would not jeopardize the

¹⁷⁵ Ingo Vogelsang and Martin Cave “Framework for promoting competition” (19 November 2019).

current benefits to competition in downstream retail markets from the non-competitive but regulated FFLAS market.¹⁷⁶

- 2.395 Whether promoting additional competition in any one dimension would be to the long-term benefit of all telecommunication end-users would depend on the trade-off between the potential benefits and costs from competition in that dimension which may well impact negatively competition in another dimension. Thus, the further promotion of workable competition in telecommunication markets would be appropriate only if the outcomes either would not conflict with the outcomes set out in s 162, or if the conflicts between the individual purposes of s 162 and s 162(2)(b) are balanced.¹⁷⁷

Submissions on our approach to applying s 166(2)(b)

- 2.396 Our position on the most appropriate way to give effect to s 166(2)(b) in setting the IMs and subsequent PQ and ID determinations for the first regulatory period remains unchanged from our draft decisions.
- 2.397 We developed our approach to applying s 166(2)(b) in response to stakeholders' requests for additional clarity on how we will incorporate into our decision-making process the requirement of s 166(2)(b) to promote competition where this would be in the long-term benefit of end-users in all telecommunication markets.¹⁷⁸
- 2.398 We received submissions on our approach to applying s 166(2)(b) in the draft decision from 2degrees, Enable and Ultrafast, and Chorus.

2.398.1 2degrees supports our approach, stating "The competition screening questions are appropriate given promotion of competition is an explicit part of the Part 6 objective statements."¹⁷⁹

2.398.2 Enable and Ultrafast do not object to our approach to applying s 166(2)(b) and acknowledge that the amount of information and analysis required to undertake a more in-depth competition assessment, of the type suggested in the expert report, "would seem disproportionate and unduly time

¹⁷⁶ In submissions, stakeholders acknowledged that the definition of good outcomes produced by the regulatory framework can vary by stakeholder (eg, network owners would like fair returns for operating efficiently, while internet service providers (ISPs) would like predictable paths for improving fibre performance and prices). See eg, InternetNZ "Submission on new regulatory framework for fibre" (21 December 2018), paragraph 1.10.

¹⁷⁷ See paragraphs 2.230-2.235 above for our interpretation of how s 162 and s 166(2)(b) interact.

¹⁷⁸ For example, 2degrees "Fibre emerging views submission" (18 July 2019), page 1; Trustpower "Fibre emerging views submission" (18 July 2019), paragraphs 3.4.19-3.4.21; Vocus "Fibre emerging views submission" (18 July 2019), paragraphs 51-55; and Vodafone "Fibre emerging views submission" (18 July 2019), page 7.

¹⁷⁹ 2degrees "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 7.

consuming".¹⁸⁰ They also agree with the conclusions of the expert report, and in particular that "the existing regulatory framework, which is based on regulated wholesale access to LFC's networks, is by its very existence already promoting service competition in end-user markets".¹⁸¹ Thus, Enable and Ultrafast conclude that the situations in which a full-scale competition assessment would be relevant before the Commission makes a determination or decision under the Act "would be rare".¹⁸²

2.398.3 Chorus notes that "some [competition] "screening approach" is appropriate" and that "the use of the 'competition screening' test to determine whether section 166(2)(b) is relevant will assist in providing clarity to regulated suppliers and end-users."¹⁸³

2.398.4 Chorus supports the analytical framework proposed by our expert panel.¹⁸⁴ While Chorus do not have particular objections to our competition screening considerations, it submitted that "in responding to these questions, the Commission should be specific and evidence-based".¹⁸⁵ It also question whether the exercise will "assist the analytical task before the Commission in a meaningful way" and whether there is "merit of reformulating the statutory criteria."¹⁸⁶

2.398.5 Chorus acknowledge that a pragmatic and proportionate approach to applying s 166(2)(b) is to limit the application of the analytical framework to issues where: 1) "[t]he Commission or an interested person has identified section 166(2)(b) as relevant", or 2) "[i]t is proposed that consideration of section 166(2)(b) would lead to a different outcome" than if s 162 was the sole consideration.¹⁸⁷

2.399 On balance stakeholders were supportive of our approach to applying s 166(2)(b) in setting the IMs. We acknowledge Chorus' views and note that we intend to make

¹⁸⁰ Enable and Ultrafast Fibre "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 2.12.

¹⁸¹ Ingo Vogelsang and Martin Cave "Framework for promoting competition" (19 November 2019), page 7 as cited in Enable and Ultrafast Fibre "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 8. See also Enable and Ultrafast Fibre "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraphs 2.7-2.12.

¹⁸² Enable and Ultrafast Fibre "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 2.10.

¹⁸³ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 23 and paragraph 74.

¹⁸⁴ Ibid, paragraphs 76-77.

¹⁸⁵ Ibid, paragraphs 79 and 81.

¹⁸⁶ Ibid, paragraph 79.

¹⁸⁷ Ibid, paragraph 82.

use of all evidence available to us at the time when considering how our decisions best give effect of the purposes of Part 6. We consider that our competition screening approach provides guidance to stakeholders beyond a simple reformulation of the statutory criteria. This is because the approach provides additional clarity on the issues we consider relevant to the application of s 166(2)(b) in our decision-making process and on the proportional analytical steps we will undertake.

ID regulation and PQ regulation under Part 6

Part 6 provides for ID regulation and PQ regulation

2.400 Part 6 provides for two types of regulation for FFLAS: ID regulation¹⁸⁸ and PQ regulation.¹⁸⁹ As discussed earlier, the regulations under s 226 determine which regulated providers of FFLAS are subject to which types of regulation.¹⁹⁰ As discussed earlier in this chapter, the s 226 regulations specify that:

- 2.400.1 all of Chorus' FFLAS is subject to PQ regulation except in geographical areas where the other LFCs have installed fibre networks under the UFB initiative; and
- 2.400.2 all of Chorus' and the other LFCs' FFLAS is subject to ID regulation.

2.401 The Commission is required to make determinations under s 170 that specify how ID regulation and PQ regulation apply to the regulated providers of FFLAS specified in the s 226 regulations.

Input methodologies underpin the s 170 determinations

- 2.402 Section 170 determinations (which set the ID requirements and PQ paths) are, in turn, underpinned by a series of IMs that set out the rules, requirements and processes applying to the regulation of FFLAS.
- 2.403 The IMs establish the rules and processes governing the various 'inputs' into the PQ and ID regulation determinations we set under s 170. For example, IMs will set out rules about asset valuation, so that regulated providers, access seekers and end-users understand how a regulated provider's assets will be valued, and how that value will be rolled forward over time.
- 2.404 A focus when setting the IMs is to increase certainty by maintaining rules that are stable and provide regulated providers with incentives to invest. The Act requires us to determine the IMs before we determine the PQ and ID regulations. We discuss

¹⁸⁸ Section 168.

¹⁸⁹ Section 169.

¹⁹⁰ Section 226(1).

the role of IMs, in more detail including their definition and application, in the next section.

IMs for PQ and ID regulation

- 2.405 Section 176(1)(a) sets out the matters that the IMs must cover. This is relevant to setting the maximum revenue, either at the beginning of, and possibly for each future year of, the regulatory period. Consequently, under both ID regulation and PQ regulation, the actual or future revenue received from the supply of regulated FFLAS is the key factor affected by IMs.
- 2.406 Section 176(1)(a) also requires the IMs cover quality dimensions relevant to setting quality standards under PQ regulation and reporting on quality performance under ID regulation.
- 2.407 Section 176(1)(c), which relates to regulatory processes and rules, sets out only two examples of what these processes and rules might relate to, namely: the specification and determination of prices (including pass-through costs), which will relate to setting revenues/prices under PQ regulation; and the identification of circumstances in which PQ paths may be reconsidered under PQ regulation.
- 2.408 Section 176(1)(d), which relates to capital expenditure projects, is most relevant to PQ regulation. For a regulated provider subject to PQ regulation, the capex IM will set out the requirements that must be met by the regulated provider in seeking approval for capital expenditure, the criteria we will use in evaluating the proposal, and the timeframes and processes for evaluating the proposal.¹⁹¹
- 2.409 Section 188(2) sets out the types of information that may be required for disclosures, such as financial performance measures, as well as the financial statements and other information that supports those measures. This information will be required for the matters the IMs cover as required by section 176(1)(a).

¹⁹¹ In Chapter 7 we explain that Chorus is the only provider that will be subject to PQ regulation for at least the first regulatory period and we have developed the capex IM with Chorus' likely capex profile in mind. Accordingly, we refer to it as the Chorus capex IM.

Overview of ID regulation

2.410 ID regulation requires Chorus and the other LFCs to disclose specified information relating to their businesses and services which may cover a wide range of matters.¹⁹² It is governed by subpart 4 of Part 6, and the purpose is described in s 186.¹⁹³

186 Purpose of information disclosure regulation

The purpose of information disclosure regulation is to ensure that sufficient information is readily available to interested persons to assess whether the purpose of this Part is being met.¹⁹⁴

2.411 We will publish ID requirements in a determination made under s 170. Regulated providers will then be required to:¹⁹⁵

- (a) publicly disclose information in accordance with the information disclosure requirements set out in the relevant section 170 determination; and
- (b) supply to the Commission a copy of all information disclosed in accordance with the section 170 determination, within 5 working days after the information is first made available to the public; and
- (c) supply to the Commission, in accordance with a written notice by the Commission, any further statements, reports, agreements, particulars, or other information required for the purpose of monitoring the regulated fibre service provider's compliance with the section 170 determination.

2.412 We may monitor and analyse that information and must publish a summary and analysis of it, for the purpose of promoting greater understanding of the performance of individual regulated providers. This may include an analysis of how effectively ID requirements are achieving the purpose in s 162.¹⁹⁶ Subpart 4 contains the provisions relating to ID regulation, including the requirements we must (or may) prescribe.

2.413 ID is a less intrusive form of regulation than PQ regulation. Instead of regulating the price and quality of a regulated provider's services directly, ID provides a means of monitoring the regulated provider's performance, to promote the purpose in s 162.

2.414 The increased level of transparency resulting from public disclosure of information ensures that all stakeholders can assess the performance of regulated providers

¹⁹² For example, asset values, prices and conditions relating to prices, asset management plans and quality performance measures. This may be on an *ex post* ('after the event') basis or an *ex ante* ('before the event') basis such as forward-looking plans.

¹⁹³ The LFCs are currently subject to ID under subpart 3 of Part 4AA. However, clause 10 of Schedule 1AA provides these requirements will cease once ID requirements under Part 6 are in effect.

¹⁹⁴ The purpose of Part 6 is set out in s 162.

¹⁹⁵ Section 187(1).

¹⁹⁶ Section 187(2)-(3).

against the purpose in s 162. This transparency, together with the prospect of this being summarised and analysed by us also influences regulated providers' performance to become more consistent with the outcomes in s 162 over time.

- 2.415 Influencing regulated providers' performance includes encouraging the movement of prices closer to efficient prices, and the provision of services of a quality demanded by end-users. The threat of further regulation strengthens the incentives provided by ID regulation. This form of regulation also provides us with information to assist in the exercise of our other regulatory responsibilities, including making recommendations for new regulation under Part 6.

Overview of PQ regulation

- 2.416 From the implementation date, Chorus will also be subject to PQ regulation. The purpose of PQ regulation is to regulate the price and quality of FFLAS provided by regulated providers.¹⁹⁷
- 2.417 The PQ path will include quality standards that Chorus must meet and may also include incentives for Chorus to maintain or improve its quality of supply.¹⁹⁸
- 2.418 The BBM approach, described in paragraphs 2.20-2.36, is based on the notion that workably competitive markets tend to produce prices or revenues that reflect efficient costs (including a normal return on capital) reasonably closely. Where the revenue cap is based on the efficient costs of supplying regulated FFLAS, this allows the regulated provider the *ex-ante* opportunity to recover its efficiently-incurred costs and earn at least a normal rate of return on its investments.¹⁹⁹ This, in turn, will promote the incentives identified in s 162(a) and limit the regulated providers' ability to extract excessive profits, referred to in s 162(d).
- 2.419 PQ regulation is also designed to provide an incentive for regulated providers to increase efficiency through allowing increased profitability where a regulated provider improves efficiency. When setting PQ paths, we set expenditure allowances for a regulatory period which form a benchmark that regulated providers can outperform. In other words, we cap the prices or revenues that regulated providers can recover, which provides regulated providers with incentives to be cost efficient, as a regulated provider who improves its efficiency can expect to make profitability gains.

¹⁹⁷ Section 192.

¹⁹⁸ Section 194(3).

¹⁹⁹ *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289, at [43]-[46]. We do not assess the costs for whether they are strictly 'efficient' rather we place incentives for them to be efficient. There is also no guaranteed recovery of losses.

- 2.420 A proportion of these efficiency gains can flow through to lower revenues or prices when we reset the PQ path for the next regulatory period.²⁰⁰ These efficiency gains are available to be passed on to end-users, to the extent that access seekers pass through the wholesale price reductions to retail prices.²⁰¹ This promotes the outcomes referred to in ss 162(b) and (c).
- 2.421 Quality standards also have an important role in ensuring that regulated providers have the incentives to provide regulated FFLAS that meets end-users' demands. These quality standards form a key part of our PQ regulation. For example, minimum quality standards help ensure regulated providers do not increase profits (or decrease losses) through cost reductions from lower quality services. This helps achieve the outcome in s 162(b).
- 2.422 In determining the quality IM, we considered the relationship of that IM with the possible quality standards that will ultimately be set in PQ paths.
- 2.423 The Commission is required to apply relevant IMs when determining the prices or quality standards applying to FFLAS. However, not all aspects of the PQ path are determined by the IMs.
- 2.424 Where there is no relevant IM, we retain the ability to set the PQ path in the way that we consider best promotes the purpose of Part 6 and (where relevant) the promotion of workable competition in telecommunications markets. Our decisions in these instances will be guided by the legal and economic framework applicable to PQ regulation and will be based on the evidence available to us.

²⁰⁰ It is *a priori* unclear how the resulting lower revenue allowance will flow through to the individual prices of different PQ FFLAS, since regulated providers subject to PQ regulation have pricing flexibility for some PQ FFLAS (within the revenue cap) while others are subject to price caps. However, the lower revenue allowance is likely to result in a lower average price across all PQ FFLAS.

²⁰¹ We have previously examined the extent of pass-through of changes in regulated wholesale copper prices in New Zealand. We concluded that "residential consumers of copper broadband services are benefiting from the pass-through of a reduction in regulated wholesale copper prices as a result of our copper pricing decisions". See Commerce Commission "How retailers of telecommunications services have passed through changes in regulated wholesale copper prices to retail prices for residential consumers: A study under s 9A of the Telecommunications Act" (21 June 2017).

Chapter 3 Final decisions: Asset valuation IM

Table 3.1 Summary of final decisions on the asset valuation IM

Issue	Final decision
Key features	We have struck a balance between principles and specific rules, with a consistent approach across PQ and ID regulation. We will generally adopt GAAP but will prescribe rules for specific situations where needed.
Asset entry to the unallocated RAB	The unallocated RAB value is the total value of assets used to provide regulated FFLAS, including the value of assets that are shared. An asset will be eligible to enter the unallocated RAB in the year in which the asset is first commissioned (ie, employed, meaning available for use) by that regulated provider in the provision of regulated FFLAS.
Asset entry to the allocated RAB	The allocated RAB is the value of assets used in providing regulated FFLAS after applying the cost allocation IM. The maximum value of a shared asset allowed in the allocated RAB is established in the cost allocation IM.
Initial value of a fibre asset	The initial value of a fibre asset is the cost incurred by a regulated provider in constructing or acquiring an asset (net of capital contributions) and less any depreciation determined under GAAP.
Review of base costs	We will not undertake any backwards-looking efficiency test review of, or revise the base costs for, assets constructed prior to the implementation date. Post-implementation, we will not revise the base cost of assets after these assets enter the unallocated RAB. For example, there will be no revisions having regard to any new benchmarks for efficient network builds.
RAB roll forward	The RAB roll forward will include a building block for the return of capital. The return of capital is recognised via a depreciation building block, while the return on capital is calculated as RAB multiplied by the cost of capital, as part of the building blocks allowable revenue.
Application of cost allocation	The cost allocation IM is applied to determine the directly attributable cost and the portion of a shared cost that is attributable to regulated FFLAS (and non-FFLAS). The cost allocation IM is also applied to allocate costs between the PQ RAB and the ID-only RAB.
Depreciation – supplier subject only to ID regulation	Regulated providers must apply a default method consistent with GAAP at implementation. Regulated providers can apply an alternative method to ensure that the depreciation information disclosed under ID is consistent with the expected time profile of revenue recovery that applies at the time of disclosure.
Depreciation – supplier subject to both PQ and ID regulation	The regulated provider must apply a default method consistent with GAAP at implementation. The regulated provider can propose an alternative method if it better promotes the purpose of the Act. ID depreciation must be consistent with PQ. If certain assets are only employed in the provision of FFLAS that are subject to ID, those assets are subject to ID rules.
RAB indexation	The IM provides compensation for inflation through the indexation of the RAB post-implementation as part of the roll forward.

Issue	Final decision
RAB adjustments following deregulation	Following a Commission deregulation review under s 210 of the Act and the Minister's decision to deregulate, the asset valuation IM provides for the removal of the deregulated assets from the RAB (including a corresponding portion of the financial loss asset).
Asset specificity	The IM sets minimum levels of asset specificity.
Asset sales	The IM includes rules that apply to the sale and purchase of assets, based on applying the principle of FCM. A portion of the financial loss asset will also be removed when assets are sold.
Intangible assets, vested assets, and network spares	The IM sets rules for the treatment of intangible assets, vested assets and network spares.
Treatment of Crown Financing:	
General approach	The cost of Crown financing is accounted for by deducting an amount that represents the costs that the regulated provider avoids because it receives concessionary financing for assets funded by the Crown from the benchmark return on capital.
Avoided costs	For Chorus in both the pre-implementation and post-implementation periods the avoided costs due to the concessionary financing is the product of the finance rate based on the relevant financial instruments that were used to fund the capital and the balance of Crown funding outstanding.
Finance rate of regulated providers subject to PQ and ID	Chorus' finance rate is calculated using the mix of debt and equity contained in the contract with the Crown where: <ul style="list-style-type: none"> • cost of debt is based on an estimate of senior and subordinated debt with the mix consistent with the contract with the Crown. Senior debt is the benchmark cost of senior debt. Subordinated debt is 41 basis points above the benchmark cost of senior debt; • the cost of equity is based on a 75% weighting to the benchmark cost of equity and 25% weighting to the benchmark cost of senior debt.
Balance of Crown financing outstanding	The balance outstanding is determined for each year reflecting the relevant financing agreements (in nominal terms) between Chorus and the Crown.
Finance rate of regulated providers subject to ID only	Where Crown financing is provided: <ul style="list-style-type: none"> • entirely in substance as debt it is the benchmark cost of debt; • entirely in substance as equity it is the benchmark cost of equity; • in substance as a combination of debt and equity, it is the benchmark cost of equity and debt reflecting the debt/equity mix of the Crown funding.

Issue	Final decision
The present value of the benefit of Crown financing for the losses period	<p>To calculate the present value of the benefit of Crown financing:</p> <ul style="list-style-type: none"> • use the unadjusted benchmark WACC to calculate the present value of the revenue and cost items; • calculate the benefit of Crown financing separately as the present value of the annual benefits of Crown financing; where <ul style="list-style-type: none"> ◦ the annual benefits of Crown financing are calculated as the finance rate applicable to the regulated provider multiplied by the balance of the Crown financing; ◦ the present value of the annual benefits of Crown financing is calculated using the unadjusted benchmark WACC.
Timing of repayments	We have not fixed the timing of repayments for regulatory purposes.

The purpose and structure of this chapter

3.2 This chapter sets out the final decisions on the asset valuation IM, and the reasons for those decisions. It is structured as follows:

- 3.2.1 Relevant context for setting the asset valuation IM:
 - 3.2.1.1 key concepts used in this chapter;
 - 3.2.1.2 key features of our approach;
 - 3.2.1.3 key considerations in determining the asset valuation IM;
 - 3.2.1.4 the requirements under the Act;
 - 3.2.1.5 the statutory framework used for making our IM decisions;
 - 3.2.1.6 how final decisions on the asset valuation IM interrelate with other IMs for regulated FFLAS; and
 - 3.2.1.7 how we envisage final decisions will be implemented under PQ and ID regulation.
- 3.2.2 Final decisions and reasons in relation to establishing the initial RAB, comprised of:
 - 3.2.2.1 scope of the regulated asset base and its valuation;
 - 3.2.2.2 core valuation rules for initial RAB assets;
 - 3.2.2.3 limits on allocation of shared assets to regulated FFLAS;

- 3.2.2.4 capital contributions; and
 - 3.2.2.5 the benefits of Crown financing.
- 3.2.3 Final decisions and reasons in relation to the RAB roll forward, which include consideration of:
- 3.2.3.1 RAB roll forward mechanism;
 - 3.2.3.2 core valuation rules for fibre assets added after implementation;
 - 3.2.3.3 valuation of assets repurposed for fibre use that are added to the RAB;
 - 3.2.3.4 calculation of depreciation and financial loss asset amortisation;
 - 3.2.3.5 treatment of inflation; and
 - 3.2.3.6 adjustments to the RAB following deregulation.
- 3.2.4 Final decisions and reasons in relation to other key components of the asset valuation IM, including:
- 3.2.4.1 specification of asset granularity in the RAB;
 - 3.2.4.2 treatment of intangibles;
 - 3.2.4.3 sale and purchase of assets; and
 - 3.2.4.4 treatment of vested assets.
- 3.3 Note that final decisions and reasons in relation to the financial loss asset are the subject of a separate decision and determination which will be published in November 2020.

Context for the asset valuation IM

- 3.4 For most businesses, the value of an asset depends on its contribution to the business' expected profitability, which—in a workably competitive market—is constrained by competition. In regulated markets, however, there is little or no competition. In the context of regulation, the valuation of assets serves the function of controlling returns. Rather than *reflecting* the profits that a service provider expects to earn, the valuation of assets will help *determine* the service provider's profit expectations and ultimately prevent excessive returns.

- 3.5 BBM regulation uses a collection of assets referred to as the “regulated asset base” (RAB). The RAB has a specific purpose, which is to represent the value of a regulated provider's investment in capital assets. The RAB records the assets that are employed by a regulated provider to provide regulated services and the values of those assets (in the eyes of the regulator) at each point in time. The test for the appropriateness of any method for updating the RAB over time has specific objectives, which are to ensure that the method by which the regulatory value is changed over time provides incentives for efficiency (including to minimise cost) but also to continue investment in the regulated services where it is efficient to do so.
- 3.6 Under our approach to asset valuation, assets supporting the delivery of regulated FFLAS will be included in the RAB. The regulatory values of these assets will be based on the depreciated historic cost of investments.²⁰² In addition to the core fibre assets, the RAB will include a financial loss asset that captures unrecovered returns that have accumulated up to implementation date.²⁰³

Key concepts used in this chapter

- 3.7 **The regulated asset base or RAB:** This is the collection of assets that the regulated fibre service provider employs to provide the regulated services. These assets may be wholly or partly employed to provide regulated services. If they are only partly employed to provide regulated services, then cost allocation will be required to identify the portion of the cost applicable to regulated FFLAS. The RAB will support both PQ regulation and ID regulation.
- 3.8 **Unallocated and allocated RABs:** When an asset is first employed to provide regulated FFLAS, it enters the unallocated RAB, which holds the total value of assets that are wholly or partly employed to provide regulated FFLAS. The unallocated RAB will include the financial loss asset. The cost allocation IM is applied to the unallocated asset value whenever it is necessary to determine a specifically attributable (ie, ‘allocated’) portion of the asset value for regulated activities (for example to calculate depreciation and revaluations). Note that the financial loss asset is directly attributable to regulated FFLAS.
- 3.9 **RAB roll forward:** The value of the unallocated RAB is 'rolled forward' each year. The roll forward takes an opening unallocated RAB, recognises changes in the asset base over time, for example from newly commissioned assets, the disposal of assets, revaluation of assets (ie, indexation by the Consumer Price Index (CPI)) and the return of capital via depreciation over time, to determine the unallocated closing

²⁰² Telecommunications Act 2001, s177(1)(a) and (b).

²⁰³ Telecommunications Act 2001, s177(2) and (3).

RAB. Application of the cost allocation IM to the opening and closing unallocated RAB values will produce an allocated opening or closing RAB value.

- 3.10 **Multiple RABs:** Each regulated provider's collection of assets employed in the provision of regulated FFLAS will be in the ID RAB, ie the collection of assets employed in the provision of FFLAS subject to ID regulation. The asset valuation IM also includes rules for subsets of the ID RAB relevant for other regulatory purposes, such as the PQ RAB. The PQ RAB (at implementation only relevant for Chorus) includes assets employed by a regulated provider in the provision of FFLAS subject to PQ regulation. This is discussed further at paragraphs 3.48-3.52 below.
- 3.11 **GAAP:** Generally accepted accounting practice in New Zealand, referred to as GAAP, are accounting standards. These standards set out the recognition, measurement, presentation and disclosure requirements for transactions and events that are important in the preparation of financial reports.

Key features of our approach to the asset valuation IM

- 3.12 The key features of our approach to developing the asset valuation IM are that we have:
 - 3.12.1 struck an appropriate balance between principles and specific rules for each issue;
 - 3.12.2 prescribed a single set of requirements that apply to regulated providers subject to both PQ and ID regulation, and those subject to ID regulation only;
 - 3.12.3 ensured rules, process, and requirements are consistent unless there is a reason for adopting differing approaches;
 - 3.12.4 allowed GAAP rules to be applied to implement our asset valuation decisions where the rules are consistent with relevant regulatory objectives.
- 3.13 We consider this approach has produced an asset valuation IM that achieves an appropriate balance between certainty and flexibility, while seeking to reduce compliance costs for regulated providers. We explain this in further detail below.

Balance between principles and specific rules

- 3.14 Our approach has been to strike an appropriate balance between principles and specific rules. For example, we have taken a flexible approach to asset specificity (we note we also refer to this as "asset granularity"). We have prescribed minimum levels of specificity that regulated providers must meet when describing assets in the RAB in order to meet current and anticipated regulatory needs, but have avoided

specifying detailed categories to allow regulated providers some flexibility to determine the level of disaggregation of underlying data.

- 3.15 The dynamic environment of the telecommunications market—with a new fibre network rollout, developing technology and the emergence of potential competition—points towards adopting a regulatory approach that can accommodate ongoing change in market circumstances. We consider that a principles-based regime with general 'rules' supplemented with more detailed rules to meet specific requirements is most appropriate for this environment.²⁰⁴ For example, prescriptive rules are best suited for particular scenarios, assets or legislative directions, for example the calculation of the financial loss asset.

A single set of requirements and consistency

- 3.16 We have developed a single IM that applies to both Chorus and the other LFCs. The IM rules apply consistently to Chorus and the other LFCs, unless there is a reason justifying differing approaches. In general, we found that different approaches are only required to provide for differences between the two forms of regulation: ie, PQ and ID regulation.
- 3.17 A potential reason for a different asset valuation IM for different regulated providers, eg, one for Chorus and one for other LFCs, would be to reduce the regulatory burden that the other LFCs face.²⁰⁵ This could be, for example, because the other LFCs are all significantly smaller entities than Chorus, with fewer potential end-users.
- 3.18 On balance, we consider that the benefits of having a standard IM that applies equally to all LFCs outweigh the potential burden faced by the smaller LFCs. This will improve the ability to compare the profitability of Chorus and the other LFCs. It will also enable a smoother transition to PQ regulation for the other LFCs, if it becomes necessary to expand the scope of regulation that applies to those entities.

Regulatory rules and GAAP

- 3.19 We have considered the extent to which the asset valuation IM needs to provide for additional or different rules to those that regulated providers are required to meet as part of their statutory financial reporting obligations. Our approach to this IM is:
- 3.19.1 to adopt GAAP rules as part of the asset valuation IM where they are consistent with relevant regulatory objectives; and,

²⁰⁴ An example of a general 'rule' is that assets would be eligible to enter the RAB based on the definition of regulated services.

²⁰⁵ For example, requirements could be simplified to minimise the investment required in existing systems to produce new data.

- 3.19.2 where our regulatory treatment of assets is aligned with GAAP and there is a change to GAAP standards, the regulatory rules and processes IM will provide rules for deciding whether the PQ path should be reopened.
- 3.20 The statutory financial records that regulated providers are required to maintain are based on GAAP. This means that adopting GAAP can be a cost-effective approach, minimising compliance costs and reducing the complexity for regulated providers given their finance staff will be familiar with the GAAP rules.
- 3.21 In the asset valuation IM, we adopt GAAP where possible. We discuss rules that are not in alignment with GAAP throughout the chapter.
- 3.22 Changes to accounting standards will impact the rules regarding the valuation of assets.²⁰⁶ The impact of a change is addressed by the regulatory rules and processes IM (refer to paragraph 9.97).²⁰⁷

Key considerations

- 3.23 The decisions relevant to the valuation of assets can be thought of in two related parts.
- 3.23.1 How the initial value of the RAB is established at the start of the new Part 6 regime.
 - 3.23.2 How the RAB value is ‘rolled forward’ over time (ie, updated year-on-year) (referred to in this paper as the “RAB roll forward”).
- 3.24 Both these elements of the asset valuation exercise must be determined in accordance with the relevant statutory requirements. Figure 3.1 below outlines a high-level summary of the considerations for these two related parts.

²⁰⁶ A recent example of GAAP changes that the Commission has considered in respect of Part 4 is raised by a new financial reporting standard New Zealand Equivalent to International Financial Reporting Standard 16 Leases (NZ IFRS 16).

²⁰⁷ We note that this issue is broader than asset valuation, because GAAP is also relied on for opex and may have tax, WACC and revenues implications.

Figure 3.1 The two parts to asset valuation decisions²⁰⁸

1. Initial RAB value

In considering how the initial RAB value is established, we address the following:

- When an asset enters the RAB
- How assets entering the RAB are valued and whether any review of costs should be undertaken
- Whether special valuation rules are required for particular types of assets or particular situations (eg, contributions from other parties towards the cost of the asset)
- How to recognise the benefit of Crown financing in calculating the initial fibre asset²⁰⁹.

2. How the RAB value is rolled forward over time (“RAB roll forward”)

- Once the initial RAB is established, we must decide how it is rolled forward, ie, how it is updated year-on-year over time). Issues to be addressed for the RAB roll forward include:
- The rules established for the initial RAB valuation that continue to be applicable for the roll-forward
- How to determine the various building blocks that are used to undertake the RAB roll-forward, such as:
 - depreciation (return of capital)
 - revaluation or indexation of the RAB.
- The rules required for deregulation, sale or destruction of assets
- Whether any other rules are required, such as rules regarding how asset data is recorded.

RAB at implementation

3.25 At implementation, the RAB will consist of both:

3.25.1 the financial loss asset; and

3.25.2 the physical core fibre assets employed in the provision of FFLAS valued at their depreciated historic cost. We use the term “core fibre assets” to identify this category of fibre assets.

3.26 The financial loss asset and the core fibre asset RAB together make up the RAB for the regulated provider.

3.27 The financial loss asset captures the financial losses incurred by the regulated provider during the pre-implementation period in providing FFLAS under the UFB initiative for the period starting on 1 December 2011 and ending on the close of the day immediately before the implementation date.²¹⁰

Treatment of the financial loss asset

3.28 The financial loss asset – as with the core fibre assets in the RAB – will inform the profitability assessments under ID regulation, and the prices or revenues recovered

²⁰⁸ This figure is intended to provide a high-level summary only.

²⁰⁹ This requirement is a unique feature of the UFB initiative. In order to give effect to the requirements of s 171(2) and s 177(3)(b) in the IMs, we have adopted the concept of the “benefit of Crown financing” as an estimate of the benefit of Crown financing to Chorus or the other LFCs. Refer to the discussion starting at paragraph 3.168 for further detail.

²¹⁰ Section 177(2).

over time by regulated providers that are subject to PQ regulation. As the financial loss asset is part of the initial RAB, this calculation is within the scope of the asset valuation IM during this transition phase to the new Part 6 regulatory regime.

- 3.29 The scope of the asset valuation IM for Part 6 is also necessarily wider than the IMs for EDBs under Part 4 because Part 6 requires us to cover all of the regulatory building blocks that are needed to calculate the financial loss asset. Our approach throughout this chapter is to discuss, where relevant, the rules for the financial loss asset calculation alongside those of the core fibre asset RAB.
- 3.30 The calculation of the RAB for tax purposes is discussed in the Tax Chapter.

Requirements under the Act

- 3.31 Section 176(1)(a)(ii) of the Act sets out the required content of the asset valuation IM:²¹¹

The input methodologies relating to fibre fixed line access services must include, to the extent applicable to the type of regulation under consideration, —

- (a) methodologies for evaluating or determining the following matters in respect of the supply of the fibre fixed line access services:
- ...
- (ii) valuation of assets, including depreciation, and treatment of revaluations

- 3.32 Section 176(2)(a) provides that every IM must, to the extent reasonably practicable, set out the matters in s 176(1) in sufficient detail to allow regulated providers to estimate the material effects of the IMs.

Calculation of the initial value of fibre assets: s 177

- 3.33 Section 177 sets out the rules relating to determining the initial value of fibre assets.²¹² It is relevant to both the core fibre assets and the financial loss asset. The key features of s 177 are discussed in this section.
- 3.34 Section 177(1) sets the value of assets employed in the provision of FFLAS (core fibre assets):

UFB initiative assets constructed or acquired by Chorus or the other LFCs prior to implementation date are valued at their depreciated historic cost.²¹³

²¹¹ Section 176(1)(a)(ii).

²¹² Section 177 is included in full at Attachment E.

²¹³ The “UFB initiative” is defined in section 5 of the Act. The scope of the UFB initiative is significant for the asset valuation IM, given the direction under the Act to calculate the initial value of fibre assets

- 3.35 Assets which were built before 2011 and therefore pre-date the UFB initiative, which have been employed in the provision of FFLAS under the UFB initiative for Chorus, are valued at their depreciated cost derived from Chorus' general purpose financial statements. We refer to these assets in this paper as "pre-2011 assets".
- 3.36 Section 177(2): Financial loss asset: Financial losses over the pre-implementation period (from 1 December 2011 to 31 December 2021) must be capitalised and treated as an additional asset (referred to as the "financial loss asset") which will be part of the initial RAB, but separately identifiable for transparency.²¹⁴ This is a feature of the Part 6 regime that is distinct from Part 4.
- 3.37 We note that while the Chorus UFB network relies on pre-2011 assets, the fibre networks in existence at the implementation date will be largely comprised of newly built UFB initiative assets.²¹⁵ The costs of these assets have been the subject of considerable scrutiny by CIP in accordance with the requirements under the UFB contracts and are supported by accounting records.²¹⁶

Decision making framework

The promotion of the purpose of IMs: s 174

- 3.38 The asset valuation IM, like all other IMs, is intended to promote certainty for regulated providers, access seekers, and end-users in relation to determining the asset valuation rules for PQ and ID purposes. The asset valuation IM seeks to achieve this by setting upfront rules, requirements, and processes regarding the way assets are valued, which is a key input to determining the rate of return on investment. Without the asset valuation IM there would be many open questions regarding how to determine the return on investment.²¹⁷

The promotion of the purpose of Part 6 in s 162: s 166(2)(a)

- 3.39 Our asset valuation decisions must be those that we consider will best give, or are likely to best give, effect to the purpose in s 162 of the Act.

(s 177), which requires us to take account of "investments made under the UFB initiative". For background regarding the history and scope of the UFB initiative, refer to Chapter 1.177), which requires us to take account of "investments made under the UFB initiative". For background regarding the history and scope of the UFB initiative, refer to Chapter 1.

²¹⁴ Final decisions and reasons in relation to calculation of the financial loss asset are the subject of a separate decision and determination in November 2020.

²¹⁵ The fibres that connect each fibre customer to the shared communal infrastructure will have been newly built for UFB and significant portions of the communal infrastructure will have been constructed post 1 December 2011.

²¹⁶ CIP is the company established to manage the Crown's investments in fibre networks constructed under the UFB initiative, formerly known as Crown Fibre Holdings - refer to Chapter 1.

²¹⁷ For example, questions regarding the relevance of efficiency tests or when assets enter the RAB and are eligible to be used in calculating the return on and of assets.

- 3.40 The asset valuation IM has a key role in promoting the purpose of Part 6 of the Act. In particular, it seeks to mitigate the incentives for regulated providers to seek ways to increase their profits above efficient levels. The asset valuation IM does so by setting the rules for PQ regulation that limit regulated providers' ability to earn excessive profits through over-recovery of costs. The rules set by the asset valuation IM promote the long-term benefits of FFLAS end-users by ensuring that:
- 3.40.1 the allocated RAB reflects the assets that are actually used in providing regulated FFLAS; and
 - 3.40.2 when applied under PQ regulation, the maximum allowable revenue based on, among other things, the PQ RAB, will apply an overall limit on certain prices that end-users are charged and will thereby facilitate the reflection of the cost of those assets in the prices set.
- 3.41 The asset valuation IM provides insights into regulated providers' profitability and performance. Profitability assessments may be undertaken by the Commission or other interested persons using information provided and published under ID regulation. The requirement for regulated providers to be transparent regarding their performance may create incentives for those providers to act in a way that promotes the purposes of Part 6.
- 3.42 We consider that our decisions for the asset valuation IM are likely to best give effect to the purpose in s 162 of the Act as they promote the outcomes consistent with those produced in workably competitive markets. The specific outcomes relevant for the asset valuation IM are those in s 162(a) and (d). The asset valuation IM:
- 3.42.1 Ensures that regulated providers have incentives to innovate and to invest, including in upgrading and replacing existing assets, and purchasing new assets (in line with s 162(a)). The asset valuation IM allows regulated providers to add assets to the RAB at implementation date at their depreciated cost. These assets include pre-2011 assets. The value of the initial RAB is calculated in a manner consistent with the legislative requirements. This reinforces incentives for regulated providers to invest going forward (s 162(a)); and
 - 3.42.2 provides rules for determining the initial RAB that limits regulated providers' ability to extract excessive profits (s 162(d)). It also sets out rules that must be applied over time to ensure that the treatment of assets under particular situations limits a regulated provider's ability to extract excessive profits (s 162(d)) when applied under PQ and ID regulation.

- 3.43 In addition to directly promoting the outcomes set out in s 162(a) and s 162(d), the asset valuation decisions are supportive of the other outcomes set out in s 162. These are the promotion of incentives to improve efficiency (s 162(b)) and ensuring regulated providers allow end-users to benefit from efficiency gains in the supply of FFLAS, including through lower prices (s 162(c)).

The promotion of workable competition in telecommunications markets: section 166(2)(b)

- 3.44 In reaching our decisions for the asset valuation IM, where relevant, we have considered the requirement under s 166(2)(b) to promote workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services. For each of our asset valuation decisions, we have considered the ‘competition screening’ questions set out in the Regulatory Framework chapter at paragraph 2.384 to help us identify any implications that the decision could have for the current or future competitive conditions in telecommunication markets.
- 3.45 The key instances our final asset valuation decision have considered the promotion of workable competition are:
- 3.45.1 approach to deregulation; and
 - 3.45.2 approach to implementation of reg 5 and reg 6²¹⁸ in the fibre IM determination.

Approach to deregulation

- 3.46 We have determined that the rules for the treatment of assets following a future deregulation decision have the potential to affect competition in any deregulated market where the regulated providers supply products using assets that were included in the RAB prior to deregulation. Retaining deregulated assets in the RAB may mean that a regulated provider subject to PQ regulation can shift the recovery of costs from unregulated (ie, deregulated) services to regulated services.
- 3.47 To the extent that competition is effective in the relevant unregulated market, the ability to shift costs could increase the competitiveness of a regulated provider relative to its competitors. In the absence of similar opportunities to shift costs, other firms operating in the market would be at a competitive disadvantage relative to the regulated provider. We discuss further how our final decision on adjustments to the RAB following deregulation addresses this, and best gives effect to both s 162 and s 166(2)(b).

²¹⁸ Telecommunications (Regulated Fibre Service Providers) Regulations 2019, Regulations 5 and 6.

Approach to implementing reg 5 and reg 6 in the fibre IM determination

- 3.48 As set out in paragraphs 2.50 and 2.51 of the Regulatory Framework chapter, the Regulations provide:
- 3.48.1 all regulated providers' FFLAS are subject to ID regulation (reg 5);
 - 3.48.2 all Chorus' FFLAS (except to the extent that a service is provided in a geographical area where a regulated fibre provider (other than Chorus) has installed a fibre network as part of the UFB initiative) are subject to PQ regulation (reg 6) (**the proviso**). Reg 6 comes into force on 31 December 2021.
- 3.49 In order to take account of the different scope of FFLAS specified in reg 5 and 6, we have adopted the following three overarching decisions:
- 3.49.1 providing for classes of regulated FFLAS within the defined term "regulated FFLAS", as set out in the Regulatory Framework chapter at paragraphs 2.75, 2.76 and 2.77;
 - 3.49.2 introducing the reporting of multiple regulatory asset bases (RABs) under ID, as explained below; and
 - 3.49.3 specifying that fibre asset values and regulatory tax allowance values are (unless explicitly specified otherwise) determined for each PQ path on the basis of actual values determined for a "base year" in respect of a regulated provider's PQ FFLAS, as explained below in paragraphs 3.53-3.56.

Multiple RABs under ID

- 3.50 Our second overarching decision in respect of implementing reg 5 and reg 6 is to explicitly introduce the reporting of multiple RABs under ID regulation by specifying in the IMs that an ID determination would:
- 3.50.1 require the disclosure of information for fibre assets employed by a regulated provider in the provision of FFLAS subject to ID regulation (ID RAB);
 - 3.50.2 require the disclosure of information for fibre assets employed by a regulated provider in the provision of FFLAS subject to PQ regulation (PQ RAB);
 - 3.50.3 allow for the Commission to require disclosure of information for further collections of fibre assets employed in the provision of a FFLAS class as we may from time to time specify for the purposes of Part 6 (additional RABs).

- 3.51 Regulated providers that are currently only subject to ID regulation will have a solely ID RAB. Chorus is, however, subject to both PQ and ID regulation. Certain of Chorus' assets will only be subject to ID regulation, due to being exempt from PQ regulation under reg 6 (refer to paragraph 3.48.2 above). This means that while all of Chorus' fibre assets will be in its ID RAB, only a subset of those fibre assets will be in its PQ RAB. Chorus' fibre assets that are not included in the PQ RAB will be ID-only assets.
- 3.52 We consider that our approach to implementing the Regulations (through the use of FFLAS classes and multiple RABs) is likely to best give effect to the purpose in s 162 by allowing interested persons, consistent with the purpose of ID regulation in s 186, to assess:²¹⁹
- 3.52.1 the extent to which regulated providers have incentives to innovate and to invest in fibre assets, as outlined in s 162(a) for FFLAS subject to different forms of regulation; and
 - 3.52.2 the extent to which regulated providers are limited in their ability to extract excessive profits from regulated FFLAS across a variety of fibre assets, as outlined in s 162(d).

Fibre asset values for the second regulatory period onwards are based on actual values for a 'base year'

- 3.53 Our third overarching decision in respect of implementing reg 5 and reg 6 is to specify that fibre asset values are (unless explicitly specified otherwise) determined for the second regulatory period onwards on the basis of actual values determined for a 'base year' in respect of a regulated provider's PQ FFLAS.²²⁰ The tax chapter will discuss our approach for the forecast tax allowance values for each regulatory period.
- 3.54 This decision is a consequence of the difference of the scope of services between FFLAS subject to ID regulation and PQ regulation for Chorus. Our draft decision is to specify key fibre asset values and regulatory tax allowance values for PQ on the basis of actual values determined in accordance with the ID IMs.
- 3.55 Building on our draft decision, our decision is that key fibre asset values in respect of the PQ RAB for the base year will be used in PQ forecasts for the second regulatory period onwards.

²¹⁹ Once information is required to be disclosed under ID.

²²⁰ The base year is a disclosure year for which actual data is available and which is used for developing forecasts for setting a price-quality path. The base year is a disclosure year specified by the Commission. As discussed in paragraphs 3.123-3.136 below, for the first price quality regulatory period, actual values obtained by the Commission prior to implementation date should be used as the basis for forecasting initial asset values for the first regulatory period.

3.56 We consider that this approach:

- 3.56.1 provides sufficient certainty about how most fibre asset will be determined for PQ, consistent with the purpose of IMs in s 174; and
- 3.56.2 reduces potential compliance costs for regulated providers by predominantly avoiding the need to apply different methodologies for the valuation of fibre assets between the ID IMs applying for ID regulation and the IMs applying for PQ regulation.

Promotion of workable competition

- 3.57 We have considered whether the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services is relevant, as required under s 166(2)(b). We have not identified any reasons why the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services has implications that would require us to take a different approach from the one which promotes s 162 as outlined in paragraph 3.52 above.
- 3.58 We consider that s 166(2)(b) will have a role when we apply the Regulations as part of PQ regulation.

Relevant economic principles

- 3.59 As set out in paragraph 2.280 in the Regulatory Framework chapter, we have adopted three key economic principles to help us develop and explain our decisions for the fibre IMs. The three economic principles are real FCM, allocation of risk, and recognising the asymmetric consequences of over- and under-investment.
- 3.60 In developing the final decisions in the asset valuation IM, we have applied the FCM principle where it was relevant to do so. The mitigation of inflation risk by indexing the RAB (and treating revaluations as income) is an example of the application of the FCM principle.²²¹

How the asset valuation IM interacts with other IMs

- 3.61 The asset valuation IM is closely linked with the cost allocation IM. The cost allocation IM sets out the rules regulated providers must apply when identifying the portion of total asset values and operating expenses associated with regulated FFLAS compared to the portion of costs that are allocated to services other than regulated

²²¹ This economic principle seeks to ensure regulated providers have incentives to invest, such as in innovation, efficiency and quality, while limiting their ability to extract excessive profits.

FFLAS (including unregulated services). When making asset valuation decisions, we have considered the following aspects of the cost allocation IM.

- 3.61.1 We distinguish between the ‘unallocated RAB’ and the ‘allocated RAB’ - see paragraph 3.8 for further explanation.²²²
 - 3.61.2 The application of the asset valuation IM in PQ and ID regulation interacts with the cost allocation IM to ensure that assets existing at implementation date that are directly or otherwise attributable to the regulated services contribute to the calculation of revenues or prices.
 - 3.61.3 The concept of an allocated and unallocated RAB in the asset valuation IM is applied in conjunction with the cost allocation IM under PQ and ID regulation.
- 3.62 In addition to cost allocation, the asset valuation IM has close interdependencies with the cost of capital, capex and tax IMs. When making asset valuation decisions, we have considered the final decisions of these other IMs to ensure alignment between all decisions in the fibre IMs. For example:
- 3.62.1 the regulatory tax asset values attributed to regulated services are determined by the interaction of the asset valuation IM and the cost allocation IM. The asset valuation IM sets the values at which the initial regulatory tax asset values are capped;
 - 3.62.2 the cost of capital IM final decisions regarding how we allocate risk, where risk is allocated to regulated providers and how we compensate regulated providers for the risk they carry influenced several decisions in the asset valuation IM. Examples include the depreciation method and the treatment of inflation.

How the asset valuation IM applies to PQ and ID regulation

Application under ID regulation

- 3.63 We are required to make a determination specifying how ID regulation applies to regulated providers (s 170(1)). The purpose of ID regulation is to ensure sufficient information is readily available to interested persons to assess whether the Part 6 purpose is being met.²²³
- 3.64 An ID determination will set the form and content of information that is made public. These will be set in the future, and ID rules relating to the form and content

²²² In this chapter, when we refer to the ‘RAB’, we are using the term in a general sense, unless we specifically refer to an unallocated or an allocated RAB.

²²³ Telecommunications Act 2001, s 186.

are not considered further here. Given that ID must provide sufficient information to interested persons to allow them to assess whether the purpose of Part 6 is being met, we need to set out what degree of information will be “sufficient”.

- 3.65 The information disclosed under ID must be consistent with the way prices and/or maximum revenues have been set to allow both the Commission and other interested parties to assess the profitability of a regulated provider.
- 3.66 To the extent that regulated providers are regulated under ID, they will be free to set prices and earn revenues without being subject to limits set by us. They will make their own determinations of prices and will have the freedom to:
 - 3.66.1 change prices to respond to market conditions;
 - 3.66.2 seek higher or lower levels of uptake; and
 - 3.66.3 seek higher or lower revenues and returns over a particular period.
- 3.67 Our assessment of the issues for ID under Part 6 is that they are similar to those faced under Part 4 in relation to airports. We have based this conclusion on the fact that, similar to airports under Part 4, entities subject to ID under Part 6 will:
 - 3.67.1 not be subject to limits set by the Commission on price or revenue; and
 - 3.67.2 be free to set prices based on their own choice of depreciation method and asset life.
 - 3.67.3 To encourage behaviour by regulated providers subject to ID that is consistent with outcomes in s 162(a)-(d) of the Act, it is important that interested persons can assess these entities' profitability.

Application under PQ regulation

- 3.68 The asset valuation IM will also apply to PQ regulation. The focus of PQ regulation is setting a forward-looking PQ path, using forecast information. The price path will provide an opportunity for a regulated provider to recover a return of (via depreciation) the RAB and the financial loss asset, together with an appropriate return on capital.
- 3.69 The price path for regulated providers will be set based on a building blocks approach to determine their maximum allowable revenue over the regulatory period. The RAB underpins the calculation of various building blocks, such as return of (depreciation) and on capital. The price path will therefore need to be informed by the RAB value for a particular regulatory period, calculated in accordance with the IM for asset valuation (in conjunction with other IMs).

Key differences

- 3.70 The key differences in asset valuation rules between regulated providers subject to PQ regulation and those subject to ID are²²⁴:
- 3.70.1 decisions on certain matters (eg, depreciation) are made as part of the PQ regulation process subject to IM rules, whereas under ID regulation, information must be reported consistently with the IM; and
 - 3.70.2 regulated providers subject to only ID regulation must report in a manner consistent with the choices the entity makes to set pricing.
- 3.71 However, the way the asset valuation IM applies to PQ and ID is linked. For example, the value of actual commissioned capex will go into the ID RAB and will be updated on an annual basis.²²⁵ This value will then become the starting position for the PQ path in the next regulatory period.

Final Decisions: establishing the initial RAB

- 3.72 This section outlines our final decisions regarding the valuation of assets in the initial RAB. These are decisions on:
- 3.72.1 scope of the regulated asset base and its valuation;
 - 3.72.2 core valuation rules for initial RAB assets;
 - 3.72.3 limits on allocation of shared assets to regulated FFLAS;
 - 3.72.4 capital contributions; and
 - 3.72.5 the benefits of Crown financing.
- 3.73 The initial RAB at implementation date will consist of core fibre assets employed in the provision of regulated FFLAS and a financial loss asset. In the determination, “employ” is defined as “available for use”.
- 3.74 While we address the final decisions regarding the roll forward of the RAB later in this chapter, it should be noted that a number of the decisions discussed in this section are also relevant for the roll forward of the RAB.
- 3.75 The asset valuation IM sets the rules for valuing assets in the initial RAB for Chorus and the other LFCs. The IM does not contain details of the process for gathering data

²²⁴ Noting that currently Chorus is subject to PQ as well as ID, with some end-users being ID-only.

²²⁵ The commissioned values will enter the unallocated RAB, and cost allocation will be used to determine the allocated values in the ID RAB.

for this purpose. Instead, these processes will be worked through as part of the implementation of PQ and ID regulation.

Scope of the regulated asset base and its valuation

Final decision: entry of assets into the RAB

- 3.76 Our final decision is that an asset will be eligible to enter a regulated provider's RAB in the year in which the asset is first employed (ie, the year in which the asset is 'commissioned' by that regulated provider in the provision of regulated FFLAS). This decision is also applicable to the entry of assets to the RAB as part of the RAB roll forward.
- 3.77 The IM provides a high-level rule to determine which assets will be included in the RAB, with more detailed rules prescribed by exception where necessary to meet regulatory objectives.
- 3.78 The rule, in line with the requirements of s 177 of the Act, is that an asset is eligible to be included in the RAB if it is:
 - 3.78.1 constructed or acquired by a regulated provider;²²⁶ and
 - 3.78.2 employed in the provision of FFLAS (whether or not the asset is also employed in the provision of other services).^{227 228} An asset is eligible to be included in the RAB from the year it is first employed in the provision of FFLAS.
- 3.79 In response to submissions received on our draft decisions, we have defined the term "employ" to mean "available for use" to provide clarity for interested persons.
- 3.80 The assets that will be included in the RAB depend on the scope of services that fall within the definition of regulated FFLAS, declared in regulations under s 226. The scope of regulated FFLAS is discussed in more detail in Chapter 2, regulatory framework for IMs.
- 3.81 The rationale for our decision on the entry of assets into the RAB is detailed below.
 - 3.81.1 It is not possible to foresee all types or specifications of assets that may be used to provide regulated FFLAS. Regulated providers should

²²⁶ Telecommunications Act 2001, s 177(1)(a).

²²⁷ In keeping with the definition of "fibre asset" in s 177(6) of the Act.

²²⁸ We note that NZ IAS 16 at paragraph 55 says "(d)epriciation of an asset begins when it is available for use, ie, when it is in the location and condition necessary for it to be capable of operating in the manner intended by management."

therefore not be limited in the type of assets that they can include in the RAB, provided the assets support the delivery of a regulated FFLAS. By providing regulated providers with the flexibility to include any assets that meet this requirement, the IM ensures that regulated providers do not face disincentives to invest in the provision of FFLAS,²²⁹ while being limited in their ability to extract excessive profits.²³⁰

- 3.81.2 While we will not specify exactly which assets are to be included in the RAB, there are certain categories of assets that will be specifically excluded for regulatory purposes.²³¹
- 3.81.3 In areas with regulated FFLAS, Chorus is expected to commence decommissioning its copper network which will involve incurring significant costs. Under the rules in the cost allocation IM, costs incurred solely in decommissioning assets formerly employed to provide copper services (ie, telecommunications services that are not regulated FFLAS) must not be treated as a cost of constructing or acquiring a fibre asset.²³²
- 3.82 On the other hand, decommissioning of the copper network may occur concurrently with other work, such as the reconfiguration and repurposing of other assets in the fibre network. In such cases the costs can be said to relate to both the provision of regulated FFLAS and to telecommunications services that are not regulated FFLAS.²³³ In these cases a portion of these costs may be allocated to regulated FFLAS, subject to a cap based on unavoidable costs. For more detail, refer to paragraphs 4.97-4.142 of the cost allocation IM chapter 4.

Changes from our draft decision on the entry of assets into the RAB

- 3.83 In the draft determination, the term “commissioned” was defined with reference to assets “employed” under the UFB initiative. Our draft determination did not, however, include definitions of the terms “employ”, “employed” and “employment”.

²²⁹ Telecommunications Act 2001, s 162(a).

²³⁰ Telecommunications Act 2001, s 162(d).

²³¹ For example, refer to the section on the treatment of intangibles or the sale and purchase of assets.

²³² Decommissioning refers to the withdrawal of assets from operation and hence it covers costs of scrapping, dismantling, etc. Decommissioned assets are removed from the unallocated RAB (if applicable), with any proceeds from disposal appropriately recognised.

²³³ Repurposing refers to costs incurred in reconfiguring or modifying an existing asset to allow it to be used to provide new services. For example, the decommissioning of an aerial copper cable may be performed concurrently with the installation of a fibre cable and the repurposing of the pole on which both cables were hung.

- 3.84 We received the following submission from Chorus on the term “employed” as used in the draft decision.

3.84.1 Chorus submitted that:²³⁴

We consider the use of the term “employed” in this definition to be vague. In addition, the term “employed” does not work well with the definition of “commissioning date”, which assumes that the definition of “commissioned” has a clear start date. In our view, it is clearer to use the term “available for use” rather than “employed.” Our proposed definition is also more consistent with how the term “commissioned” has been defined in IMs under Part 4 of the Commerce Act.

3.84.2 Chorus also submitted that we should use the phrase “available for use” rather than “employed” within the definition of “commissioned”.²³⁵

- 3.85 Chorus’ submission highlighted that the use of the word “employed” is open to interpretation and potentially in conflict with the GAAP concept of a commissioned asset.
- 3.86 Under GAAP, depreciation of an asset occurs once an asset has been commissioned, that is, when the asset “is available for use, ie, when it is in the location and condition necessary for it to be capable of operating in the manner intended by management”.²³⁶ Under GAAP, for an asset to be commissioned, it is not necessary that an asset is delivering a service to an end-user, rather, the asset must simply be capable of serving an end-user.
- 3.87 We consider that the use of the word “employed” can give rise to some ambiguity. In particular, it could be interpreted to refer to the point in time at which the asset is first used to deliver a service to an end-user (rather than simply, the point in time when the asset is available for use), in conflict with the GAAP definition of a commissioned asset.
- 3.88 An interpretation of an “employed” asset that is based on whether the asset is used to deliver a service to an end-user may be problematic, for example, where a regulated provider’s records of commissioning dates of assets are based on GAAP. If this interpretation of “employed” were adopted in the IM, a regulated provider’s existing records would be incompatible with that interpretation, and therefore could not be used for regulatory purposes. This would raise practical challenges in terms of defining when an asset was commissioned from a regulatory perspective. It could also mean an asset to which an end-user was previously connected, but from which

²³⁴ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), Appendix C, page 3.

²³⁵ Ibid.

²³⁶ NZ IAS 16, at paragraph 55.

that end-user has now been disconnected, is arguably not “employed” in the provision of FFLAS.

- 3.89 We consider our revised approach to define “employed” as “available for use” meets requirements under the Act. Section 177(1)(b) directs that the initial value of a fibre asset must be adjusted for accumulated depreciation, as at the implementation date, under GAAP. As set out at paragraph 3.86 above, the asset is considered commissioned and hence depreciation under GAAP can begin, once the asset is in the location and condition necessary for it to be capable of operating in the manner intended by management.
- 3.90 Some submitters raised concerns with the term “employed” being defined as “available for use”. These are detailed below.
- 3.90.1 Vodafone disagreed with our proposal to bring certain costs into the regime when assets are “available for use”.²³⁷ It argues that this approach:²³⁸
 - 3.90.1.1 creates incentives for deployment of assets well ahead of when they are needed; and
 - 3.90.1.2 distorts the cost allocation between copper and fibre. Copper assets that will be re-used for fibre may be defined as “available for use” from December 2011, while they will not be connected to the fibre network until a later date. - 3.90.2 Vodafone quotes Chorus’ recent announcement that it has 72,387 fibre installs that are not in use. Vodafone claims that many of these installs are the result of a campaign by Chorus to connect customers to fibre ahead of demand.²³⁹ We discuss the pre-provisioning of end-users at paragraphs 3.98- 3.102.
 - 3.90.3 Vodafone’s concern regarding deployment of assets ahead of demand does not encompass communal assets, and it agrees with the Commission that:

²³⁷ See Commerce Commission “Fibre input methodologies – Further consultation draft – Reasons paper” (23 July 2020), page 47.

²³⁸ Vodafone New Zealand Submission on Fibre Input Methodologies Further Consultation Paper, (13 August 2020), page 3.

²³⁹ Ibid, page 4.

...all communal assets are considered ‘in use’ from the date they are deployed. These assets were required to be deployed under the contracts with the Crown. It would be inconsistent to not allow the LFCs a return on these costs.²⁴⁰

3.90.4 2degrees and Vocus agreed with Vodafone’s concerns and consider that assets should only enter the RAB when “in use” or “actually employed”.²⁴¹

3.90.5 Chorus supports our approach which provides that assets will enter the RAB when they are commissioned. Chorus notes that this is “consistent with the electricity distribution services IM under Part 4” and goes on to say:²⁴²

This means that assets will enter the unallocated RAB when they are available for use with respect to FFLAS. This is consistent with the definition applied under GAAP and is required to ensure the expectation of *ex-ante* FCM is maintained.

3.90.6 Chorus disagrees with Vodafone’s view that assets should start to depreciate when they become available for use, but not enter the RAB until they are actually used to provide FFLAS:

.... That approach is inconsistent with the principle of real FCM since the depreciation of FFLAS assets outside of the RAB would mean that some value would be excluded from recovery (*i.e.* result in considerable under-recovery).

3.90.7 Chorus notes, however, that our approach does not lead to a disproportionate level of costs being allocated to regulated FFLAS.²⁴³

For clarity, this does not distort the allocation of costs where assets are re-used for FFLAS. Only shared assets that are subsequently allocated to FFLAS are included in the allocated RAB and therefore only the proportion of depreciation that is allocated to FFLAS is recoverable.

3.91 We acknowledge the concerns that certain submitters have raised regarding the timing at which assets enter the RAB. From an efficiency perspective it is preferable to deploy assets in line with end-user demand. However, under the UFB initiative, the new fibre network was designed to be deployed ahead of demand. Vodafone acknowledges this fact with regard to communal infrastructure (see paragraph 3.97). As noted at paragraph 3.93, there are practical problems with determining the point

²⁴⁰ Vodafone New Zealand Submission on Fibre Input Methodologies Further Consultation Paper, (13 August 2020), page 4.

²⁴¹ 2degrees “Cross-submission on further consultation package” (4 September 2020), page 4, Vocus “Cross-submission on further consultation package” (4 September 2020), paragraph 3(vii).

²⁴² Chorus “Cross-submission on further consultation package” (4 September 2020), paragraph 37.

²⁴³ Ibid, (4 September 2020), paragraph 39.

in time when a customer is first connected to a service, and GAAP does not require providers to take that approach.

- 3.92 We agree with Chorus that if a FFLAS asset is commissioned from a GAAP perspective but is not allowed to enter the RAB from a regulatory perspective, then any depreciation of the asset accumulated prior to the regulatory commissioning date would be unrecoverable.
- 3.93 There are legitimate reasons to deploy the non-communal fibre assets ahead of a customer order for service. It would be difficult to reconcile treating communal assets as being employed from the date of commissioning under GAAP when they are available for use, while delaying commissioning of other assets until they are actually providing a service to a customer.
- 3.94 If we were to require that non-communal assets could only be commissioned once they were actually used to deliver FFLAS to an end-user this would also exclude legitimate regulatory costs and introduce practical challenges.

Certain costs would be excluded from the RAB

- 3.95 Section 177(1)(a)(i) provides that the initial value of a fibre asset is calculated by taking the cost incurred by a regulated fibre service provider in constructing or acquiring the fibre asset. As noted above, depreciation starts once the asset is commissioned from a GAAP perspective. Delaying the regulatory commissioning date of all non-communal assets until these assets are providing a FFLAS service to an end-user would exclude, for regulatory purposes, any depreciation incurred under GAAP prior to this date. The portion of the asset value represented by that amount of depreciation would then be unrecoverable. The exception to this would be if the asset was instead viewed as a work in progress from a regulatory perspective, attracting additional finance during construction. The addition of further finance during construction would however add to the cost recorded under GAAP and further inflate the cost recorded for regulatory purposes.

This would create practical challenges for determining when the asset was commissioned

- 3.96 Certain assets (other than communal assets) would only be commissioned from a regulatory perspective when an individual end-user was provided with a service. This approach would also be likely to add to regulatory compliance costs. For example, details of when an end-user took up a service would need to be recorded, which is not required under GAAP. A new process would be required in order to determine whether the GAAP commissioning date or the end-user service date was the applicable regulatory commissioning date.
- 3.97 Our final decision is that an asset will be eligible to enter a regulated provider's RAB in the year in which the asset is first employed (ie, the year in which the asset is

‘commissioned’ by that regulated provider in the provision of regulated FFLAS). We set out our consideration of Vodafone’s concerns regarding pre-provisioning in the paragraphs below.

Pre-provisioning of fibre end-user connection assets

- 3.98 The term “pre-provisioning” refers to a regulated provider installing any part of fibre, micro-duct and ONT from the end-user’s premises boundary to the service termination in the end-user’s premises, in advance of the regulated provider receiving an order for fibre connection from an RSP.²⁴⁴
- 3.99 This process normally involves using the same equipment as that used for a standard installation. This equipment includes fibre, a duct, an external termination point (ETP) and may include an ONT.²⁴⁵
- 3.100 The pre-provisioning of lead-ins is normally undertaken in the following situations:
 - 3.100.1 as part of deploying infrastructure to serve new property developments;
 - 3.100.2 installing fibre on a bulk basis at multi-dwelling units (MDU) and retirement villages; and
 - 3.100.3 targeting an area using direct engagement such as door-to-door sales to arrange fibre installations for people keen to upgrade to fibre.
- 3.101 Pre-provisioning is undertaken for a number of reasons.
 - 3.101.1 Pre-provisioning can be an efficient way for a regulated provider to install the required lead-in infrastructure. It drives efficient outcomes via lower upfront costs, improves quality of the service (eg, via reducing installation times), and meets end-user expectations.²⁴⁶ It has previously been carried out as part of deploying copper-based networks.
 - 3.101.2 Some regulated providers run door-to-door campaigns that seek to drive uptake, via pre-provisioning of lead-ins and ONTs. They obtain the end-users’ or property owner’s permission to undertake the pre-

²⁴⁴ Note that as this is defined as tasks involving installation work inside an end-user’s premises boundary, it will not include construction of shared infrastructure outside the boundary.

²⁴⁵ It does not include a Residential Gateway, the device supplied by the Retail Service Provider (RSP) that plugs into the ONT and provides ethernet connectivity and WiFi. That is supplied separately by the RSP once the end-user chooses an RSP and orders a service.

²⁴⁶ For example, an end-user ordering service at a newly built premises expects provision to have been made for telecommunications service as part of the construction process. This avoids the need for subsequent installation work to be undertaken requiring reinstatement of parts of the premises.

provisioning during these campaigns. Advantages of these campaigns include:

- 3.101.2.1 targeting particular areas and carrying out bulk installations facilitate more efficient use of the service company workforce; and
- 3.101.2.2 campaigns help to drive uptake on the provider's fibre network.

3.102 We are not reviewing or excluding pre-implementation costs on the basis of efficiency of the spend.

- 3.102.1 There will be no revisions to costs of assets for efficiency once the assets have entered the RAB: see paragraphs 3.138 to 3.146.
- 3.102.2 For incentive/retention costs in the loss period, we acknowledge that these costs will be part of the financial loss asset calculation, on the basis that we are not assessing the efficiency of pre-implementation expenditure, see paragraph 3.146.

3.103 While Vodafone raises valid concerns that deployment of customer connection assets ahead of demand may drive inefficient spend, we also note the following:

- 3.103.1 The LFCs had incentives to undertake the fibre rollout efficiently, especially given Crown financing did not extend to non-communal infrastructure. This meant that inefficiency of the rollout would add to LFCs' funding requirements.
- 3.103.2 The inclusion of a financial loss asset within the initial fibre asset was only confirmed in late 2018. This meant LFCs had no guarantee of recovering any increased costs from deployment of the network ahead of demand. Further, s 177(4) of the Act provides that regulated providers are not protected from all risk of not fully recovering those financial losses through prices over time.
- 3.103.3 The end-user pricing agreed as part of the UFB agreement with the Crown also served as an incentive to limit costs.
- 3.103.4 Deploying customer connection assets ahead of demand can be efficient, can benefit end-users and moreover is expected by end-users in some situations.²⁴⁷

²⁴⁷ For example, as noted earlier, pre-installation of telecommunications connection infrastructure as part of a newly constructed building is standard practice.

- 3.104 Post-implementation, we will review Chorus' capex plans in terms of their investment in the various types of pre-provisioning. We also expect to review the pre-provisioning activity of regulated providers subject to ID regulation.

Pre-2011 assets will only enter the RAB when they were employed for the UFB network

- 3.105 Vodafone has raised concerns that the entry of pre-2011 assets to the RAB can distort cost allocation. In particular, it is concerned that copper assets with the potential to be re-purposed for fibre may be defined as “available for use” from December 2011, despite not being connected to the fibre network until a later date.
- 3.106 We consider pre-2011 assets should only be included in the financial loss asset calculation to the extent that they were employed to provide UFB services. In practice, this will mean that filters need to be applied in determining the value of pre-2011 assets that enter the initial RAB and the calculation of financial losses during the transition period. These filters relate to the geographic footprint of the UFB networks, usability, timing and allocation of costs between services.
- 3.107 Pre-2011 assets will only enter the RAB (post-implementation), or be taken into account in the calculation of the financial loss asset (for the transition period), from the point in time they were actually employed for the UFB network. This reflects the phased timing of the UFB rollout and connections. When adding these assets to the RAB or financial loss asset, an appropriate asset/cost allocator (typically a default allocator) will be applied to determine how much of the value of the employed shared infrastructure should be allocated to the UFB initiative/services. As we discuss further in the cost allocation chapter, we will apply scrutiny to determine the appropriateness of a regulated provider's chosen allocator.
- 3.108 Pre-2011 assets will not be considered “available for use” to provide UFB FFLAS²⁴⁸ until they are in a state where the communal or customer lead-in infrastructure is actually capable of connecting a customer.²⁴⁹ This will not be from 1 December 2011. Any cost allowed into the RAB will also be subject to cost allocation. The same treatment will also apply to repurposed assets commissioned after the commencement of the UFB rollout.
- 3.109 The application of the test that infrastructure commissioned pre-2011 can only enter the RAB when it is actually capable of connecting a customer will prevent re-used assets from being defined as “available for use” from 1 December 2011. For example, a fibre cable that existed prior to 1 December 2011 and which is then

²⁴⁸ UFB FFLAS is any FFLAS provided by a regulated provider under the UFB initiative for the financial loss period, and for the avoidance of doubt, excludes any FFLAS that is regulated FFLAS

²⁴⁹ For example, we note testing will be undertaken as part of commissioning the asset and that user acceptance testing is undertaken by CIP. These tests will provide proof of when the asset was available for use.

subsequently used as part of communal infrastructure will only be considered “available for use” when the communal infrastructure is ready as a complete working entity and passes commissioning tests to reach a stage where end-users can be connected to a service. On its own, the fibre is not capable of providing UFB services and will require the deployment of further elements, such as fibre flexibility points and layer 2 equipment.

- 3.110 The asset stranding chapter also responds to issues raised by Vodafone relating to excluding unused assets from the RAB.

Core valuation rules for initial RAB assets

Final decision: initial regulatory value

- 3.111 Our final decision for the valuation of the initial fibre asset, consistent with s 177, is that the initial regulatory value of an asset will be determined based on the cost of that asset, net of specified capital contributions which are defined in s 177(6).²⁵⁰ Core valuation rules for assets added after implementation are covered later in this chapter under the Roll forward of the RAB section.
- 3.112 We will not undertake any review of costs for assets constructed pre-implementation. Further, we will not revise the base cost of any asset after these assets enter the unallocated RAB. For example, there will be no review to reflect future standards of efficient build (see paragraph 3.138 for further discussion).²⁵¹

- 3.113 As set out at paragraph 3.33 above, s 177 of the Act provides the rules relating to determining the initial value of fibre assets. Below is a summary of the key requirements set out in s 177:

- 3.113.1 the “initial value” of a fibre asset, to be used at implementation date, is calculated by taking the costs incurred by a regulated provider in constructing or acquiring the fibre asset (net of specified capital contributions);
- 3.113.2 the initial value of fibre assets includes the costs incurred by the provider in relation to the asset as a direct result of meeting specific requirements of the UFB initiative, and for both standard connections and non-standard connections;²⁵²

²⁵⁰ Note that we accept treatment under GAAP of capital contributions prior to implementation date.

²⁵¹ The allocated RAB is established by applying the cost allocation IM.

²⁵² Section 177(5).

- 3.113.3 the cost of the asset is to be net of specified capital contributions.²⁵³ The asset valuation IM, requires the deduction of the value of any contribution received from the cost of the asset before that asset enters the RAB, see paragraph 3.156 below in this chapter.
- 3.114 In some cases, regulated providers may have revalued their assets for GAAP or other accounting purposes, effectively modifying the original costs of those assets. Section 177(1)(b) directs us to ignore those revaluations, unless the revaluation occurred prior to 1 December 2011.²⁵⁴
- 3.115 While the asset valuation IM specifies the rules for valuing the initial RAB, (including determining the ‘dollar value’ for the initial RAB), work to ensure that regulated providers have applied the IM appropriately will be undertaken as part of the PQ or the ID regulation processes.
- 3.116 We have made some changes to the final determination to ensure that there is a clear distinction between the date an asset is:
- 3.116.1 first commissioned to provide any service. That is a service that is regulated FFLAS, UFB FFLAS, services that are not regulated FFLAS, or services that are not UFB FFLAS (whether or not the asset is also employed in providing other services); and
 - 3.116.2 first commissioned for FFLAS, that is employed by the regulated provider in providing regulated FFLAS (whether or not the fibre asset is also employed in providing other services).
- 3.117 In order to determine the adjustment for any accumulated depreciation and impairment losses (if any) at the time the asset is commissioned for FFLAS, the original commissioning date of the asset is required. The adjustment then deducts accumulated depreciation and any impairment losses from the cost of the asset when it was originally commissioned to arrive at its initial value when first commissioned for FFLAS.²⁵⁵

²⁵³ Section 177(1)(a)(i). Refer to paragraph 3.149 onwards for a discussion of capital contributions.

²⁵⁴ Section 177(1)(b)(ii) if the fibre asset was owned by Chorus before 1 December 2011, recorded by Chorus for the fibre asset in its published general purpose financial statements as of 1 December 2011.

²⁵⁵ To be clear, if the two dates are the same, then no adjustment is necessary.

Costs incurred by a related entity and the scope of the initial RAB

- 3.118 In its submission in response to the draft decision reasons paper, Northpower Fibre Limited (**Northpower Fibre**), raised an issue regarding the scope of its initial RAB. The issue was one unique to Northpower Fibre's corporate structure.²⁵⁶
- 3.119 Northpower Fibre advised that while the majority of its assets are recorded in Northpower Fibre's financial reporting accounts, a small number are reported elsewhere. Northpower Fibre's related entity, Northpower Limited, incurred certain costs in the construction of its UFB network. Northpower Fibre advised that it is not possible for these costs to be recognised in its initial RAB because Northpower Limited itself is not subject to regulation under Part 6 of the Act:²⁵⁷

Construction costs were incurred by Northpower Limited as Northpower Fibre Limited's construction partner during the build of the UFB1 network. Whilst the commissioned assets have been recorded under GAAP as assets of Northpower Fibre Limited, certain additional costs incurred in constructing these commissioned assets remain in Northpower Limited as the contract meant that these could not be recognised in Northpower Fibre Limited under GAAP.

The definition of "value of commissioned asset" in 2.2.12 (1)(a)(i) of the draft determination states that the cost of the commissioned asset is based on the cost incurred under GAAP in constructing or acquiring the asset. While Northpower Fibre Limited's corporate structure remains as it is (with Crown Infrastructure Partners Limited's (CIP) shareholding preventing Northpower Fibre Limited from being treated as a group company), these construction costs cannot be recognised in Northpower Fibre Limited's RAB as this would be contrary to GAAP.

Northpower Limited is unable to recognise these costs as it is not itself subject to the FFLAS regulation. The costs were however incurred for the UFB initiative and therefore in relation to providing FFLAS services.

The costs incurred by Northpower Limited are in relation to actual connections and additional investment in layer 2 services and infrastructure. But for the GAAP rules, they would have been incurred by and shown as assets of Northpower Fibre Limited.

The inability for Northpower Fibre Limited to include these additional construction costs in its RAB is contrary to the intent of the legislation.

- 3.120 Northpower Fibre proposed two potential solutions that it considered would allow these costs to be included in its initial RAB.²⁵⁸

²⁵⁶ Northpower Fibre Limited is a regulated fibre service provider for the purposes of the Regulations. Note that these issues relate only to Northpower Fibre Limited's UFB1 build and not to Northpower LFC2 Limited.

²⁵⁷ Northpower "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraphs 13-15.

²⁵⁸ Ibid, paragraphs 20-21.

- 3.120.1 Northpower Fibre will look to include costs incurred by Northpower Limited in the operational expenditure component of the financial loss asset when constructing its initial RAB:²⁵⁹

As the Act regulates the service rather than the entity, these costs are ring-fenced with the regulated service being the provision of FFLAS by Northpower Fibre Limited. As such Northpower Fibre will look to include these costs in the operational expenditure component of the financial loss asset when constructing its RAB.

- 3.120.2 The Commission could amend the definition of “value of commissioned asset” in cl 2.2.12 (1)(a)(i) of the draft determination. Northpower Fibre proposed that the amended definition expressly allow non-GAAP allowed costs to be included in the value where a corporate structure might mean that under GAAP costs sit outside of the entity but the costs were incurred in constructing or acquiring the asset and are in relation to providing the regulated service.

- 3.121 While we acknowledge that the costs incurred by Northpower Limited relate to investment in constructing fibre asset infrastructure, it is not open to the Commission to adopt either of Northpower Fibre’s proposed solutions as doing so would be contrary to both the requirements of the regulations made under s 226 and s 177(1)(a)(i):²⁶⁰

- 3.121.1 Section 226 provides that regulations made under the section must (a) state the name of the person; and (b) describe the services in respect of which the person is subject to PQ regulation, ID regulation or both). This means that the Act regulates both the service and the entity.

- 3.121.2 Under s 177(1)(a)(i), only costs that are incurred by the regulated fibre service provider itself can be included in the initial RAB. This means that only costs incurred by Northpower Fibre Ltd — the regulated fibre service provider for the purposes of the regulations made under s 226 — can be included in the initial RAB.²⁶¹ It is therefore not possible for costs incurred by any entity that is not a regulated fibre service provider to be included in the RAB.

- 3.122 However, given that Northpower Fibre is subject only to ID regulation and not PQ regulation, the impact of the issue is currently limited to ID regulation. It will be open

²⁵⁹ Ibid, paragraph 20.

²⁶⁰ In relation to Northpower Limited’s first proposed solution at paragraph 3.120.1 above, these costs cannot be treated as operating expenditure in any event given that they are capital for the purposes of GAAP.

²⁶¹ Telecommunications (Regulated Fibre Services Provider) Regulations 2019, reg 5.

to Northpower Fibre under ID to voluntarily report what the position would be if Northpower Fibre and Northpower Limited were treated as one entity as part of the qualitative explanation for its outcomes.

Final Decision: calculating the opening RAB at 1 January 2022

- 3.123 In our further consultation paper and associated draft determination published in July 2020 we provided for a transitional forecast PQ RAB for the first regulatory period.²⁶² This change recognised that at the time of determining the PQ path, actual values (as envisaged in the draft IM) will not yet be available. Transitional assumptions are therefore needed to obtain an estimate of the “initial PQ RAB”.
- 3.124 Our final decision is to adopt the alternative approach that was proposed in the further consultation. This approach specifies that actual values obtained by the Commission prior to implementation date²⁶³ should be used as the basis for forecasting initial asset values for the first regulatory period, where the data obtained by the Commission is compliant with:
 - 3.124.1 GAAP for core fibre assets per s 177(1) of the Act; and
 - 3.124.2 the specification of financial losses in Schedule B of the determination, in respect of the financial loss asset.
- 3.125 In the draft decision we specified IMs for the purposes of determining values used for price paths, where fibre asset values would be determined by adopting actual values using the ID IMs in respect of the base year and applying forecasts for future years.²⁶⁴
- 3.126 Our further consultation decision was to introduce a transitional provision for valuing fibre assets for the purposes of specifying the first PQ path. These transitional assumptions are needed to obtain an estimate of the “initial PQ RAB”.
- 3.127 To determine the first PQ path, an opening RAB at implementation date is required. The actual values of the RAB at implementation date will not be known for several months after implementation date. We therefore need to forecast a value for the RAB at implementation date and determine which actual values will be used as the base for determining the forecast value at implementation.

²⁶² Commerce Commission, Fibre input methodologies - Further consultation draft – reasons paper, (23 July 2020); Commerce Commission, Further consultation – Fibre Input Methodologies Determination, (23 July 2020).

²⁶³ We will obtain relevant actual values that, along with necessary forecast values, allow the determination of the PQ path within the required timeframe.

²⁶⁴ Refer to clause 3.2.1 of the draft IMs.

- 3.128 We proposed that the fibre asset values — including the value of the financial loss asset— would be determined for the first PQ path by adopting a base year and applying forecasts.
- 3.129 For the purposes of the ID IMs, the PQ RAB is not formed until the implementation date (1 January 2022). Our further consultation decision proposed introducing a transitional requirement to allow the PQ RAB values used to determine the first price-quality path to be based on:
- 3.129.1 actual values for “regulatory year 2019” (the 12-month period ending 31 December 2019),²⁶⁵ and
 - 3.129.2 a value for 1 January 2022 to be developed from forecast values of the initial RAB for “regulatory year 2020” (the 12-month period ending 31 December 2020) and “regulatory year 2021” (the 12-month period ending 31 December 2021).
- 3.130 We did this by specifying in clause 3.3.1(6)(c) of the determination that certain references to “implementation date” and “the disclosure year 2022” in the ID IMs mean “regulatory year 2019”.
- 3.131 Our draft decision in November 2019 specified IMs for the purposes of determining fibre asset values used for PQ paths. It was, however, unworkable for the first regulatory period as it relied on adopting actual values using the ID IMs in respect of the base year. As originally drafted, the ID IMs could not rely on actual values for the base year as the initial RAB is not formed under the ID IMs until 1 January 2022.
- 3.132 We consider that specifying a workable IM for valuing fibre assets for the purposes of specifying the first PQ path promotes the purpose of IMs under s 174 more than our draft decision as our draft decision did not explicitly specify, in a workable manner, the actual fibre asset values that would predominantly be used for the first regulatory period.
- 3.133 Not specifying IMs for a transitional forecast RAB for the first regulatory period was an oversight in our draft decision, which we identified in the process of revising the decision. We did not receive submissions on this issue in response to our draft decision.

²⁶⁵ In general, the base year is a disclosure year for which actual data is available and which is used for developing forecasts for setting a price-quality path. The base year is a disclosure year specified by the Commission. By specifying regulatory year 2019 as the basis for estimating the first price quality regulatory period ‘initial PQ RAB’ in our further consultation paper, we effectively specified 2019 as the base year.

- 3.134 Enable and Ultrafast supported the addition of the transitional PQ RAB.²⁶⁶ Chorus agreed that the Commission’s proposed transitional initial PQ RAB (initial RAB) improves the workability of the draft asset valuation IM. However, it pointed out that audited data for 30 June 2020 will be available and should be used. Chorus supported an alternative approach being considered by the Commission.
- 3.135 Our final decision is to adopt the alternative approach that was proposed in the further consultation. This approach specifies that actual values obtained by the Commission prior to implementation date should be used as the basis for forecasting initial asset values for the first regulatory period, where the data obtained by the Commission is compliant with:
- 3.135.1 GAAP for core fibre assets per s 177(1) of the Act; and
 - 3.135.2 the specification of financial losses in Schedule B of the determination, in respect of the financial loss asset.
- 3.136 This approach is simpler to apply and simplifies the drafting of the transitional provisions for the first regulatory period in clause 3.3.1(6) of the determination.

Final Decision: specific valuation rules for particular asset types

- 3.137 We have identified several types of assets for which departures from GAAP treatment are required.²⁶⁷ These include:
- 3.137.1 working capital (refer 3.437);
 - 3.137.2 goodwill (refer 3.437);
 - 3.137.3 finance during construction (refer Attachment C);
 - 3.137.4 sale and purchase of assets (refer 3.443);
 - 3.137.5 vested assets (refer 3.463).
- 3.138 Our final decision is that we will not:
- 3.138.1 undertake any review of costs for assets constructed prior to the implementation date; nor
 - 3.138.2 revise the base cost of any asset after these assets enter the unallocated RAB (which will also apply to assets entering the RAB as

²⁶⁶ Enable Networks Limited and Ultrafast Fibre Limited Submission on Fibre Input Methodologies Further Consultation Draft – Reasons Paper 23 July 2020, (13 August 2020), paragraph 7.1(a).

²⁶⁷ We note that s 177 (1)(b) specifies the use of GAAP for adjusting for depreciation and impairment losses (if any) at the implementation date.

part of the RAB roll forward process). For example, there will be no review to reflect future standards of efficient build. Section 177, which directs how we must calculate the value of initial fibre assets, requires us to value assets at cost as at the implementation date.

- 3.139 We do not consider it appropriate to have regard to efficiency in this valuation exercise. We consider that to do so would involve second-guessing the contractual arrangements between UFB partners (Chorus or another LFC on the one hand and the Crown on the other).
- 3.140 Vodafone, referring to the pre-implementation period, considers that in “most cases the actual costs faced by Chorus are a good approximation of efficient costs given the oversight of Crown Infrastructure Partners”.²⁶⁸
- 3.141 Analysys Mason argue that efficiency adjustments do not need to be applied to the RAB:

The required approach to the initial RAB valuation has been defined in the amended Telecommunications Act as being (in effect) Historic Cost Accounting (HCA) net (*i.e.* depreciated) book value, and it does not include efficiency adjustments.

In any case, we do not accept that Chorus is or has been inefficient. Indeed at the point of deployment of UFB Chorus faced high powered incentives to build efficiently.²⁶⁹

And:

(A)t the time at which the vast majority of the Chorus UFB expenditure occurred, Chorus’ UFB revenue was set based on the UFB contracts and Chorus faced strong incentives to be efficient.²⁷⁰

- 3.142 In its cross-submission, Chorus discussed the efficiency of the roll out:²⁷¹

We agree with other submitters that costs incurred as a result of the UFB initiative should be included at actual cost: this is expressly stated in section 177(5). As we note in our submission, we have a powerful incentive to pursue efficiency as a result of our status as a publicly listed company delivering on what is essentially a fixed price contract. The partnership between the Government and the industry should not be second guessed by imposing a backwards-looking efficiency test. This was the explicit policy choice made in the legislative review and by Parliament in passing the Act.

²⁶⁸ Vodafone “Submission on new regulatory framework for fibre” (21 December 2018), paragraph 103.

²⁶⁹ Analysys Mason “Report for Chorus: Response to TERA paper on “over-recovery” (24 January 2020), page 5.

²⁷⁰ *Ibid*, page 23.

²⁷¹ Chorus “Cross-submission on new regulatory framework for fibre” (5 February 2019), paragraph 63.

- 3.143 Chorus supports our decision not to undertake a review of costs for assets constructed pre-implementation or to make pre-implementation costs subject to an *ex-post* efficiency review.²⁷²
- 3.144 We recognise there may be some benefits involved in reviewing the base costs of assets for efficiency once they have entered the RAB. On balance, however, we agree with submitters who expressed views that we should not try to second-guess the agreed UFB arrangements between LFCs and the Crown by undertaking a review of the base cost of assets.
- 3.145 There are also significant practical challenges in reviewing the costs of what is now a multi-billion-dollar investment spanning various geographic regions over a period of some nine years.
- 3.146 We note that LFCs have incurred and capitalised incentive/retention costs during the loss period. These costs will be part of the financial loss asset calculation, on the basis that we are not assessing the efficiency of pre-implementation expenditure. Post-implementation, these types of costs incurred in the future will be assessed under PQ regulation in accordance with the relevant IMs, in particular the Chorus capex IM (refer to the capex IM chapter).
- 3.147 While we will not revise the costs of assets, we may limit the allocation of shared costs to regulated FFLAS.
- 3.148 When allocating costs between regulated FFLAS and services that are not regulated FFLAS, regulated providers must allocate shared costs using the ABAA methodology (see paragraphs 4.72-4.76 of the cost allocation chapter). The shared costs allocated to regulated FFLAS should be no higher than the unavoidable costs that would arise in a scenario where the services that are not regulated FFLAS are not provided. These rules also apply as part of the RAB roll forward.

Capital contributions

Final Decision: definition of capital contributions

- 3.149 Our final decision is that for the purposes of the determination, “capital contribution” is a defined term which encapsulates all amounts that regulated providers received from third parties for the construction, acquisition or enhancement of an asset.²⁷³
- 3.150 Our definition of capital contribution is based on the definition of “capital contribution” from the electricity distribution businesses (**EDB**) IMs under Part 4. It is

²⁷² Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 101.

²⁷³ Crown financing is explicitly excluded from the definition of “specified capital contribution” under s 177(6).

modified to prescribe the parties from whom a regulated provider may receive a capital contribution. It also excludes Crown financing, in order to incorporate the definition of “specified capital contribution” from s 177(6) of the Act.

3.151 Our final decision is that for the calculation of the initial RAB (including the financial loss asset) for both the pre- and post-implementation periods, capital contributions must be deducted from asset values, as required by s 177(1)(a)(i) of the Act (referred to as the “net approach”). In relation to the pre-implementation period, this decision involves us reverting to our draft decision. We have adopted this decision as we have identified that to do otherwise would:

- 3.151.1 be contrary to the requirements of s 177(1)(a)(i) going forward; and
- 3.151.2 for the financial loss period, it would require an additional present value adjustment.

3.152 We are mindful that Chorus has accounted for capital contributions in the pre-implementation period in line with GAAP requirements, and that the net approach required by s 177(1)(a)(i) represents a departure from GAAP in some cases. We will therefore work flexibly to ensure the calculation can be undertaken in a way that avoids unnecessary complexity and compliance costs. We will put in place a practical process under the PQ and ID determinations to accommodate any compliance difficulties.

3.153 Our final decision is to define capital contributions as follows:²⁷⁴

3.153.1 Capital contribution means:

- (a) money or the monetary value of other consideration charged to or received in relation to the construction, acquisition or enhancement of a **core fibre asset** or **UFB asset** by a **regulated provider** from 1 or more of the following:
 - (i) an **access seeker**;
 - (ii) an **end-user**; or
 - (iii) any other party; and
- (b) does not include any Crown financing.

²⁷⁴ Based on the definition of “capital contribution” from Commerce Commission, “Electricity Distribution Services Input Methodologies Determination 2012, Consolidated Determination” (31 January 2019).

- 3.154 This definition incorporates the statutory definition of “specified capital contribution” in s 177(6):

Specified capital contribution —

means a capital contribution that is received by a regulated provider from 1 or more of the following:

an access seeker

an end-user

any other person, as determined by the Commission; but,

does not include any Crown financing.²⁷⁵

- 3.155 This treatment of capital contributions, that is, deducting them from gross asset values and recording the net asset value in the RAB, is also applicable under the RAB roll forward.

Final decision: the net approach - calculating the initial value of the fibre asset in line with s 177(1)(a)(i)

- 3.156 The initial value of a fibre asset will be determined based on the cost of that asset, net of specified capital contributions. This implements the Act’s direction that the cost of the asset is to be net of specified capital contributions (s 177(1)(a)(i)). In line with this requirement, we will deduct the value of any capital contribution that the regulated provider received from the cost of the asset before it enters the RAB (referred to as the ‘net approach’).

- 3.157 In our draft decision, we proposed that we would require regulated providers to apply the net approach when calculating the value of the initial RAB (including the financial loss asset) for both the pre- and post-implementation periods.

- 3.158 In their submissions in response to the draft decision, Enable and Ultrafast, 2degrees and Spark supported our approach.²⁷⁶

²⁷⁵ “Crown financing” is defined in s 164(1) of the Act as “debt or equity financing provided by, or on behalf of, the Crown to a regulated fibre service provider (or a related party) in connection with the deployment of assets under the UFB initiative”.

²⁷⁶ Enable Networks Ltd and Ultrafast Fibre Ltd “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 8.23; 2degrees “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 8; and Spark “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 10.

- 3.159 In response to our draft decision, Chorus submitted that the net approach would be contrary to its treatment of capital contributions in its accounts during the pre-implementation period in some instances.
- 3.160 GAAP requires capital contributions to be either deducted from the value of the asset or treated as revenue, depending on the situation. In cases where GAAP requires that a capital contribution is treated as revenue, the net approach (ie, the requirement under s 177(1)(a)(i) of the Act to net the capital contribution off the asset value) will therefore be a departure from GAAP.
- 3.161 Section 177(1)(b) provides that once the initial value of a fibre asset has been calculated in accordance with s 177(1)(a)(i) (ie, by taking the cost incurred by the regulated provider in constructing or acquiring the fibre asset, net of capital contributions), that cost is adjusted for accumulated depreciation under GAAP. However, as noted, depreciation under GAAP may have been calculated based on the *gross* asset value if GAAP required capital contributions to be treated as revenue, not the asset value *net* of capital contributions.
- 3.162 Chorus therefore disagreed with our draft decision to require regulated providers to follow the net approach and depart from GAAP for the treatment of capital contributions for the pre-implementation period, noting:²⁷⁷

It's problematic for the pre-implementation period, as it would involve complex re-work of data over a number of years to implement;

An assumed allocation would have no guarantee of accuracy, as we can't recreate information that doesn't exist; and

What may happen in practice, due to the inconsistency between areas where the Commission has made mutually incompatible decisions – eg using actual depreciation from the accounts and then netting off capital contributions (which the accounts have not done, and do not do).

This approach is at odds with the Commission's expressed desire to adopt a simplified approach to the losses calculation by making use of existing data and granularity. It would also be at odds with the legislation for pre-2011 assets, which directs the Commission to use the existing financial accounts in the losses calculation.

- 3.163 Chorus' concern is that in relation to capital contributions it received during the pre-implementation period:

- 3.163.1 for assets that were recorded at gross value, and where the capital contribution is recognised as revenue in accordance with GAAP, Chorus would need to go back and change its accounts to net off the capital

²⁷⁷ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), para 103.

contribution and to change the revenue recognised for that period. It may have to estimate these changes, as information regarding the exact split across assets of a capital contribution may not exist;

- 3.163.2 the depreciation recorded under GAAP would then also need to be reworked, as it would then be incorrect given the change in the asset's original value; and
 - 3.163.3 the requirement under s 177(1)(a)(i) to net off capital contributions — even if this is not the GAAP requirement— and then, under s 177(1)(b), to calculate the initial value at implementation date by deducting GAAP depreciation, would produce the incorrect answer. To calculate the correct answer would require a reworking of depreciation.
- 3.164 We note that this problem can be addressed post-implementation via the immediate deduction of the capital contribution from the amount recorded in the RAB for regulatory purposes. That is, while the asset value recorded for GAAP purposes may treat the capital contribution as revenue, post-implementation regulatory rules ensure that the correct regulatory value is captured when the asset enters the RAB, no retrospective revision to GAAP treatment will be required.
- 3.165 We consider our final decision to adopt the net approach for both the pre- and post-implementation periods (ie, to deduct the value of any capital contribution received from the cost of the asset before it enters the RAB) will:²⁷⁸
- 3.165.1 meet the requirements set out in s 177(1)(a)(i) of the Act;
 - 3.165.2 ensure there is consistency between pre-and post-implementation periods and therefore no need to put in place a present value adjustment to account for capital contributions being treated as revenue pre-implementation;
 - 3.165.3 simplify the assessment of capital contributions as an input to the capex building block under PQ regulation; and
 - 3.165.4 improve the transparency of the information needed to assess the prudence and efficiency of capex forecasts. This transparency will help

²⁷⁸ Under Part 4, our reason for the net approach is that it avoids year-on-year volatility in disclosed return on investment figures that occurs with treating capital contributions as income, and the implications of that volatility for PQ and ID regulation. Our review of fibre service providers' capital contribution amounts suggests that currently the value of contributions is small compared to overall capex, limiting our current concern regarding volatility.

interested persons identify instances where regulated providers have made potential RAB additions that do not give best effect to s 162(d).

- 3.166 We understand this may require regulated providers to adopt a different approach to capital contributions for regulatory purposes than their current approach under GAAP. For example, Chorus adopts a combination of:
- 3.166.1 the net approach; and
 - 3.166.2 the revenue approach, where capital contributions are treated as revenue.
- 3.167 We acknowledge Chorus' concerns regarding re-work of historical information for the transition period. Such an exercise is likely to be complex and costly without producing significant benefits. We will therefore work flexibly to ensure the calculation can be undertaken in a way that avoids unnecessary complexity and compliance costs. We will put in place a practical process under the PQ and ID determinations to accommodate any compliance difficulties. Our aim is to ensure that the actual value of capital contributions, in line with the definition of capital contribution in the IMs, is taken into account in establishing the initial RAB (including the financial loss asset).

Final Decision: treatment of Crown financing

- 3.168 Chorus and the other LFCs received financing from the Crown to assist in the construction of the UFB network under the UFB initiatives. Under the UFB agreements between regulated providers and the Crown, favourable financing terms apply.
- 3.169 Part 6 requires the Commission to take into account these concessional financing terms as the Commission is required to reflect, in respect of any Crown financing, a regulated provider's actual financing costs in its PQ and financial losses determinations.²⁷⁹
- 3.170 We are required to take into account the concessional nature of Crown financing when:
- 3.170.1 calculating the financial loss asset relating to the pre-implementation period, which is reflected in the initial RAB at implementation; and

²⁷⁹ See s 171(2) and s 177(3)(b) of the Act, which are discussed at paragraphs 3.174 to 3.177 below.

3.170.2 determining the maximum allowable revenue for Chorus under PQ regulation in the post-implementation period.²⁸⁰

3.171 In terms of how we account for Crown financing, there is general agreement that we should account for the actual cost of Crown financing by starting with the benchmark return on capital implied by our building blocks methodology²⁸¹ and then subtracting an amount that represents the costs that the regulated provider avoids because it receives concessionary financing for assets funded by the Crown.

²⁸²

3.172 The amount to be subtracted can be calculated by multiplying the outstanding balance of Crown financing by a finance rate (see from paragraph 3.244 below for how we will do this calculation). There has been considerable debate over the finance rate that should be used in this calculation. The choice of finance rate is not straightforward and requires judgement, and our final decision has benefited from multiple rounds of consultation.

3.173 In this section we discuss the reasons for our decision.

Legal requirements and other relevant considerations in relation to the treatment of Crown financing

3.174 Under the UFB agreements between regulated providers and the Crown, favourable financing terms apply until the Crown financing is repaid.²⁸³

3.175 During Parliament’s consideration of the Bill, the Select Committee considered it helpful to provide clarity as to the treatment of this concessional funding by the Commission:²⁸⁴

²⁸⁰ We also expect to take account of Crown financing when assessing performance under ID regulation in the post-implementation period.

²⁸¹ As noted previously, we consider that adopting a building block approach would best give effect to the purposes in s 166(2)(b). We use benchmark financing costs because using actual financing costs may be inconsistent with s 162(d) by allowing a regulated provider to extract excessive profits.

²⁸² There was initially contention between expert advisers about the method that should be used (see Dr Martin Lally “The cost of capital for fibre network losses” (30 April 2019) and Incenta “Chorus’s actual financing cost for Crown-financed investment” (July 2019)). However, Chorus’ adviser Incenta eventually agreed with Dr Lally’s method, albeit using a different mathematical formulation, in their most recent submission (Incenta “Crown financing – issues raised in further paper by Dr Lally” (August 2020)).

²⁸³ Chorus has published two documents that summarise the key terms of the securities issued by Chorus to CIP as part of its UFB1 and UFB2 rollouts at: <https://company.chorus.co.nz/file-download/download/public/1464> and <https://company.chorus.co.nz/file-download/download/public/1873>

²⁸⁴ Telecommunications (New Regulatory Framework) Amendment Bill Government Bill - As reported from the Economic Development, Science and Innovation Committee Commentary – 293-2, pages 4 and 5.

We consider it reasonable that asset valuations should give UFB providers the opportunity to recover, through future revenues or prices, the actual financing costs they have incurred. However, we emphasise that recovery should be limited to actual costs. That is, the Commission should take into account the concessional element, and should not assume that commercial financing rates were applied to the whole of the asset base.This would require the Commission to prevent over-recovery of financing costs by ensuring that revenues set would be no higher than necessary to meet the actual financing costs incurred in respect of the Crown's debt/equity investment.

- 3.176 The Act therefore requires us to have regard to the actual costs incurred by the provider when determining:

- 3.176.1 **for the pre-implementation period**, the calculation of the financial loss asset: s 177(3)(b) provides the Commission "must refer to the actual financing costs incurred by the provider";²⁸⁵ and
- 3.176.2 **for the post-implementation period**, the maximum allowable revenue which we set under a s 170 determination: s 171(2) provides that maximum revenues set by a s 170 determination must "reflect, in respect of any Crown financing, the actual financing costs incurred by the provider (or a related party) in the regulatory period to which the determination applies".

- 3.177 In order to give effect to the requirements of s 171(2) and s 177(3)(b) in the IMs, we have calculated maximum revenues and the financial loss asset, by deducting from the permitted cost recovery we determined using the benchmark return on capital, an amount that reflects the concessionary financing for assets funded by the Crown. We use benchmark financing costs to determine the permitted cost recovery because using actual financing costs may be inconsistent with s 162(d) by allowing a regulated provider to extract excessive profits.
- 3.178 Further, we consider that in order to promote the long-term benefit of end-users, in accordance with the purpose of s 162, the maximum allowable revenue we set for Chorus under PQ regulation should appropriately reflect the concessional nature of the actual financing costs incurred by the provider in respect of Crown financing, so that Chorus is limited in its ability to extract excessive profits (s 162(d)).

Further, see the Departmental Report to the Economic Development, Science and Innovation Committee (20 April 2018), paragraphs 48 to 65.

²⁸⁵ We consider that the terms "refer" (used in s 177(3)(b)) and "reflect" (used in s 171(2)) are intended to have the same meaning.

- 3.179 We further anticipate that under ID regulation, to assist interested persons in assessing whether the long-term benefit of end-users is being promoted, it will be important that regulated providers' disclosed information appropriately reflects the actual financing costs incurred by the providers in respect of Crown financing.

Submissions on the treatment of Crown financing

- 3.180 We received many submissions on how we should calculate the finance rate. The finance rate is multiplied by the outstanding balance of Crown financing in order to calculate the costs that providers do not incur.
- 3.181 Vodafone submitted that absent Crown financing, Chorus' credit rating would have been significantly worsened and that in practice, by implication it would have needed to inject equity in order to finance the UFB initiative.²⁸⁶ In Vodafone's view, Crown financing would have been replaced at a finance rate that is higher than the WACC because "Crown funding was only necessary because private investment was not available for the riskiest part of the project."²⁸⁷
- 3.182 Chorus rejected Vodafone's argument, stating it is unrealistic to consider a hypothetical scenario of an absence of Crown financing. This is because without Crown financing, the project would have been unfinanceable and Chorus would have deferred the investment until it was both financeable and commercially viable.²⁸⁸
- 3.183 Chorus favours assuming Crown financing was a form of debt financing and submits that for the finance rate we should use the "credit rating that is one notch below the actual qualifying rating of the regulated provider".²⁸⁹
- 3.184 Chorus submitted that the Crown Financing equity component was more akin to debt than equity and that:

²⁸⁶ Vodafone "Submission on Fibre Input Methodologies – Draft decision" (30 January 2020), pages 12 to 13.

²⁸⁷ Vodafone "Submission on Fibre Input Methodologies Further Consultation" (13 August 2020), page 2.

²⁸⁸ Chorus "Cross-submission on Fibre input methodologies draft decision" (18 February 2020), paragraph 23.2; and Chorus "Submission on Fibre input methodologies – further consultation draft reasons paper" (13 August 2020), paragraph 33.2.

²⁸⁹ Chorus "Submission on Fibre input methodologies – further consultation draft reasons paper, Appendix A: Chorus proposed amendments to the further IM determination" (13 August 2020), page 3 and Chorus "Response to Dr Lally's paper 'Further issues concerning the costs of capital for fibre input methodologies'" (20 August 2020), paragraph 20.

- 3.184.1 Credit Rating agencies do not look at debt characteristics; rather they have noted there is no absolute requirement to repay the equity funds at the prescribed dates.²⁹⁰
- 3.184.2 CIP equity securities are treated as compound instruments by their auditors KPMG and they are not accounted for as ‘equity’.²⁹¹
- 3.184.3 Incenta has explained that CIP equity securities are free capital that ranks behind senior debt but ahead of equity in a wind-up scenario.²⁹²
- 3.185 Chorus submitted that accounting for Crown financing by using a finance rate that is more than the cost of subordinated debt would send a “strong negative signal” to investors considering partnering with government in future.²⁹³
- 3.186 Chorus based its proposal on advice from its consultant Incenta. Incenta had initially proposed a detailed method for calculating the finance rate to account for Crown financing, which involved making market observations of two types of subordinated debt. After considering the advice of Dr Lally, Incenta agreed with Dr Lally that the finance rate can be calculated more simply by using a BBB- credit rating, which is one notch below Chorus’ actual credit rating of BBB.²⁹⁴

²⁹⁰ Chorus “Chorus submission on “Fibre input methodologies – further consultation draft reasons paper” (13 August 2020), paragraph 33.3

²⁹¹ Chorus “Chorus submission on “Fibre input methodologies – further consultation draft reasons paper” (13 August 2020), paragraph 33.4

²⁹² Chorus “Chorus submission on “Fibre input methodologies – further consultation draft reasons paper” (13 August 2020), paragraph 33.5

²⁹³ Chorus “Submission on Fibre input methodologies – further consultation draft reasons paper” (13 August 2020), paragraph 15.

²⁹⁴ Incenta Economic Consulting “Crown financing – issues raised in further paper by Dr. Lally, report for Chorus” (August 2020), paragraphs 3 to 6.

- 3.187 L1 Capital submitted that our draft proposal to account for Crown financing by using the regulatory WACC “overrides the concessional nature of the CFH funding” which was intended to incentivise private investment.²⁹⁵ Further, L1 Capital submitted that our draft proposal to use the regulatory WACC did not account for the additional risks the CFH instruments placed on Chorus equity and debt holders due to conditions such as “limits on business operations, ownership holdings, governance rights, performance penalties and warrants”.²⁹⁶ L1 Capital proposed that the higher costs associated with these conditions should be reflected in a combination of a higher equity beta for the balance sheet risks, and for other risks a combination of a higher asset beta or a WACC uplift. Alternatively, L1 Capital proposed we consider the concessional funding of infrastructure projects by governments and development banks which have similar conditions.²⁹⁷
- 3.188 We also received submissions on whether we should adjust the finance rate for the post-implementation period to reduce any incentive providers may have to repay the Crown financing early.
- 3.189 Spark, Vocus and Vodafone rejected our proposal to use the regulatory WACC discounted by 25 bps in the post implementation period. Spark was concerned that this approach would distort Chorus’ incentive to reduce its overall financing costs by repaying the financing early and would undermine the UFB contracts. They recommended we consider the option canvassed in the further consultation paper, which was to lock-in the value of Crown financing irrespective of when it is repaid, which would protect consumers from paying more if the financing is repaid early.²⁹⁸
- 3.190 Vocus preferred the option of locking-in the value of Crown financing irrespective of when it is repaid, because it is consistent with the standard regulatory treatment of setting leverage independently of how debt is financed.²⁹⁹
- 3.191 Vodafone was concerned that our proposed post-implementation treatment of Crown financing did not minimise the risk of early repayment, and “is a costly way to solve the problem, placing the entire burden on end-users.”³⁰⁰ They also preferred the alternative of locking-in the Crown financing irrespective of when it is repaid because it is consistent with the treatment of leverage, would leave

²⁹⁵ L1 Capital (13 August 2020), page 1.

²⁹⁶ L1 Capital (13 August 2020), pages 2-3.

²⁹⁷ L1 Capital (13 August 2020), page 4.

²⁹⁸ Spark “Fibre Input Methodologies: further consultation draft” (13 August 2020), pages 4-5.

²⁹⁹ Vocus “Further consultation: fibre input methodologies determination 2020” (13 August 2020), paragraph 8.

³⁰⁰ Vodafone “Submission on Fibre Input Methodologies Further Consultation” (13 August 2020), page 2.

consumers no worse-off, and would continue to provide an incentive to Chorus to repay early if it is efficient to do so.

- 3.192 Enable and Ultrafast supported our draft proposal to account for Crown financing by calculating a finance rate based on the debt and/or equity characteristics of the financing.³⁰¹
- 3.193 We respond to these submissions in the following sections.

Summary of decision: treatment of Crown financing

- 3.194 Our decision is to account for Crown financing received by Chorus in both the pre-implementation and post-implementation periods as the product of the finance rate based on the relevant financial instruments that were used to fund the capital and the balance of Crown funding outstanding, where:

- 3.194.1 **Finance rate** is calculated for Chorus using the 50:50 mix of debt and equity contained in the contract with the Crown where:
 - 3.194.1.1 The cost of debt is based on an estimate of senior and subordinated debt with the mix consistent with the contract with the Crown. Senior debt is the benchmark cost of senior debt. Subordinated debt is 41 basis points above the benchmark cost of senior debt.
 - 3.194.1.2 The cost of equity is based on a 75% weighting to the benchmark cost of equity and 25% weighting to the benchmark cost of senior debt.
- 3.194.2 **Balance of Crown financing outstanding:** The balance outstanding is determined for each year reflecting the relevant financing agreements (in nominal terms) between Chorus and the Crown.³⁰²
- 3.195 For LFCs not subject to price-quality regulation, we have specified the following benchmark finance rates, and LFCs can provide evidence as to why the finance rate associated with their Crown financing may vary from these benchmarks:
 - 3.195.1 where Crown financing is provided entirely as debt, the benchmark cost of debt;

³⁰¹ Enable Networks Limited and Ultrafast Fibre Limited “Submission on fibre input methodologies further consultation draft - reasons paper 23 July 2020” (13 August 2020), paragraph 4.1.

³⁰² The balance of Crown financing for the first regulatory period will require a forecast of any additional Crown financing amounts Chorus is expected to draw down after 1 January 2022.

- 3.195.2 where Crown financing is provided entirely as equity, the benchmark cost of equity; and
 - 3.195.3 where Crown financing is a combination of debt and equity, the benchmark costs of equity and debt with the debt/equity mix of the Crown funding.
- 3.196 We anticipate that when assessing profitability, the amount that benchmark costs are reduced to account for Crown financing would need be treated as income in each disclosure year.

Reasons for our treatment of Crown financing

- 3.197 Since our draft decision for further consultation we have considered submissions and previous expert advice and reviewed evidence as to how we should calculate the finance rate to account for Crown financing in order to reflect the regulated providers' actual financing costs relating to Crown financing. Another consideration in reaching our decision is promoting the long-term benefit of end-users as required under s 162. We have also considered the terms of the financing between the Crown and Chorus/other LFCs.
- 3.198 In the draft decision for further consultation, we proposed calculating the costs that Chorus does not incur as a result of Crown financing by multiplying the outstanding balance of Crown financing by the benchmark WACC.
- 3.199 Our position in the draft decision was that Chorus would have been able to replace Crown financing with financing at the benchmark WACC. We considered what Chorus' next best alternative to Crown financing would have been, and we considered that the entire UFB rollout would have been funded at the benchmark WACC.
- 3.200 This way of thinking was generally supported by Vodafone; however, they proposed we assume that Chorus would have replaced Crown financing with financing at a rate that is higher than the benchmark WACC.
- 3.201 After considering submissions, we have changed our position and now consider that the UFB rollout would not have proceeded without a subsidy from the Crown. We now accept that Chorus/other LFCs would not have been able to replace Crown financing with financing at the benchmark WACC. Chorus has submitted that the project was unfinanceable without Crown financing on concessionary terms, and we accept that this is an appropriate assumption.³⁰³

³⁰³ Expert advice by Dr Lally and Incenta has agreed with the way the cost of capital is lowered as a result of a project being partly funded with interest free debt. Dr Martin Lally "Further issues concerning the

- 3.202 We consider that the key purpose of Crown financing was to lower costs for the regulated providers in order to make the UFB rollout a commercially viable proposition. Costs were lowered by the amount of dividend and/or interest payments forfeited by the Crown.
- 3.203 We consider that the legislation requires us to take into account the fact that the regulated providers do not have to make interest or dividend payments on the Crown financing, and because they do not incur these costs, we cannot include these costs in the calculation of the financial loss asset or maximum allowable revenues.
- 3.204 When making our decision to reflect the regulated providers' actual financing costs relating to Crown financing we do not consider the legislation allows us to consider whether the terms of the concessionary financing are appropriate or efficient or ensure financial capital maintenance.
- 3.205 As indicated above, there is general agreement that we should account for the actual cost of Crown financing by starting with the benchmark costs implied by our building blocks methodology and then subtracting an amount that represents the costs that the regulated provider avoids because it receives concessionary financing for assets funded by the Crown.
- 3.206 We consider that the best way of estimating the costs the regulated provider avoids is by valuing the securities provided by the Crown as if they had been provided by a commercial provider and abstracting away from the UFB project. We consider that using this method will better reflect the actual cost of Crown financing than using an estimate of how much the financing costs would have been without the Crown financing. We will then net off the value of this benefit against the costs when we calculate the value of the financial loss asset and maximum allowable revenue.
- 3.207 Chorus' financing agreement with the Crown comprises a range of security types:
- 3.207.1 Debt securities (50%), which include both senior and subordinated debt securities that must be repaid in full according to the repayment schedule and do not include any interest payments;³⁰⁴

cost of capital for fibre input methodologies" (25 May 2020) and Incenta Economic Consulting "Crown financing – issues raised in further paper by Dr Lally" (August 2020).

³⁰⁴ According to Chorus, "The value of the senior portion of a CIP1 Debt Security at any time is the present value of the sum repayable on the CIP1 Debt Security (i.e. the issue price) at that time, calculated using a discount rate of 8.5%. The subordinated portion of a CIP1 Debt Security at any time is the difference between the issue price and the senior portion at that time (i.e. the remainder of the issue price after subtracting the senior portion)." Chorus "Summary of CIP1 Securities", paragraph 12 and the same

3.207.2 Equity securities (50%), which at the various repayment dates must at Chorus' discretion either:

- 3.207.2.1 be repaid in cash at the original issue price;
- 3.207.2.2 be repaid as shares valued at a defined discount (5%) to the prevailing share price; or
- 3.207.2.3 have dividends commence at a prescribed yield (180-day bank bill rate plus 6%) on the original issue price which would be a type of preference share because dividends would be paid to the Crown before dividends are paid to ordinary equity investors.
- 3.207.2.4 With each issue of securities, Chorus also issues a tranche of warrants to CIP for no consideration. The warrants grant the holder a benefit if Chorus' shares perform in excess of a total shareholder return of 16% per annum.³⁰⁵

- 3.208 There has been considerable debate about the finance rates that should apply to each component of Crown financing.
- 3.209 Incenta reviewed the terms of Chorus' financing agreement with the Crown and initially recommended that the senior debt securities should be assigned a financing rate equal to the 10-year BBB benchmark; subordinated debt should be assigned a margin over the 10-year BBB benchmark of 47 basis points; and the equity securities should be assigned a margin over the 10-year BBB benchmark of 193 basis points.³⁰⁶
- 3.210 Dr Lally agreed with Incenta's analysis that the equity securities should be treated as if they are debt securities.³⁰⁷ When considering this matter further after the draft decision, Dr Lally considered that if the Crown in effect provided debt securities at a subordinated rate to the benchmark credit rating, the Crown financing should be assumed to displace funding at the subordinated rate.³⁰⁸

paragraph, but referring to CIP2 debt securities is provided in "Summary of CIP2 Securities", paragraph 10.

³⁰⁵ We understand there is little likelihood that the warrants will be used.

³⁰⁶ Incenta "Chorus's actual financing cost for Crown-financed investment" (July 2019), paragraphs 12 to 16.

³⁰⁷ Dr Martin Lally "Review of submissions on the cost of capital for fibre network losses" (12 November 2019), pages 8 and 9.

³⁰⁸ Dr Martin Lally "Further issues concerning the cost of capital for fibre input methodologies" (25 May 2020), page 17.

- 3.211 After considering Dr Lally's advice, Incenta revised its position and recommended that we use a BBB- credit rating to calculate the avoided cost of Crown debt and Crown equity. Incenta considered that their previous advice was unnecessarily complex and subject to error.³⁰⁹ The potential for error is due to measurement difficulties and the liquidity premium that is associated with observed yields for subordinated debt (Incenta considers that the liquidity premium produces an upwards bias). Incenta also considered that a one notch adjustment below BBB adequately captures the effect of subordination and indicated that Standard and Poor's uses the one notch adjustment to measure the effect of subordination.³¹⁰
- 3.212 We consider Incenta did not provide clear reasons for why it changed its proposal to the extent that it did. We are concerned that Chorus' proposal to use a BBB- credit rating may not adequately reflect the equity component of the Crown financing. We note that, in their July 2019 report, Incenta noted that an estimate of junior subordinated debt that reflected the equity securities was a three-notch adjustment.³¹¹
- 3.213 Our reason for concluding that the equity securities have a finance rate that is higher than subordinated debt, but lower than Chorus' equity, are:
- 3.213.1 The equity securities are a distinctly different category in the agreement to the subordinated debt securities. The equity securities are a type of preference share that rank behind all forms of debt, but ahead of ordinary equity, which indicates the Crown attached a higher risk rating to the equity securities than to the debt securities.
 - 3.213.2 Even though there may be an expectation that the equity securities will be repaid in cash, the equity securities rank below the subordinated debt securities in the event of default. Standard and Poor's has stated "We treat the equity securities as 100% equity given they are subordinated to all creditors of Chorus".³¹² Whilst Chorus appears to have a different interpretation of Standard and Poor's analysis we note Incenta has accepted that rating agencies treat the CIP equity securities as equity.³¹³
- 3.214 For these reasons we disagree with the advice from Dr Lally that the equity securities should be treated as if they are debt.

³⁰⁹ Incenta "Crown financing – issues raised in further paper by Dr Lally (August 2020), paragraphs 31 to 37.

³¹⁰ Incenta "Chorus's actual financing cost for Crown-financed investment" (July 2019), footnote 35.

³¹¹ Incenta "Chorus's actual financing cost for Crown-financed investment" (July 2019), footnote 36.

³¹² S&P Global, RatingsDirect, Chorus Ltd. (May 31, 2018), page 7.

³¹³ Incenta, "Chorus's actual financing cost for Crown-financed investment Report for Chorus Ltd" (July 2019), paragraph 14.

- 3.215 We have concluded that the equity securities are most similar to preference shares. They have the characteristics of preference shares except that they have a zero-coupon rate, which reverts to a normal coupon if the securities are not redeemed for cash or ordinary equity. The zero-coupon rate for a defined time is the concessional nature of the Crown financing.
- 3.216 Overall, we consider the benefit of Crown financing can be recognised by assigning:
- 3.216.1 Senior debt the benchmark credit rating (BBB)
 - 3.216.2 Subordinated debt a notch below the benchmark credit rating (BBB-)
 - 3.216.3 Equity rating between BBB- and the cost of equity, with a point in this range closer to the cost of equity.
- 3.217 There are practical issues with using a BBB- credit rating given the lack of availability in New Zealand of corporate bonds at this rating. Incenta has provided two estimates using data from the United States:
- 3.217.1 Incenta observed the difference between BBB and subordinated bonds of 17 financial firms over 2011 to 2019, which provided a margin of 47 basis points.³¹⁴
 - 3.217.2 Incenta also compared the BBB to BBB- differential (a one-notch downgrade approach as used by Standard & Poor's) using Bloomberg fair value curves for US companies that issue senior debt, which indicated a margin of 41 basis points over the 2011 to 2019 period.³¹⁵
- 3.218 Incenta initially proposed that we use a 47 basis point margin and considered the 41 basis point figure was useful as a cross check. Incenta later proposed that we use the one-notch downgrade approach because it was concerned about the accuracy of the 47 basis point margin.³¹⁶ However, Incenta did not propose a value. In the absence of an alternative proposal, we will use the 41 basis point margin as the estimate of the one-notch downgrade.³¹⁷

³¹⁴ Incenta "Chorus's actual financing costs for Crown-financed investment" (July 2019), paragraph 57.

³¹⁵ Ibid, footnote 35.

³¹⁶ Incenta "Crown financing – issues raised in further paper by Dr. Lally" (August 2020), paragraph 36.

³¹⁷ We have checked the reasonableness of using 41 basis points. The average differences between 5-year BBB and BBB- yields using data from Bloomberg are: for the US, 36 bps for communications; 42 bps for utilities and 37 bps for industrials; for Europe, 12 bps for communications, 16 bps for utilities and 23 bps for industrials. This analysis used data back to 2011 where the data was available.

- 3.219 There are also practical issues with estimating the finance rate for the value of the equity securities. The available evidence is from Incenta, as follows:
- 3.219.1 Incenta used data from the United States to estimate that junior subordinated debt has a margin of 193 basis points above the 10-year BBB fair value curve. Junior subordinated debt is likely to have a value between subordinated debt and preference shares.³¹⁸
- 3.219.2 Incenta analysed 22 preference shares issued by Australian banks and other financial institutions to estimate that the average yield was between 230 and 269 basis points above the 10-year AA- to BBB fair value curve.³¹⁹
- 3.219.3 Incenta also analysed a sample of 64 preference share issues since 2004 and found the average margin was 244 basis points above the 3-month or 6-month bank bill swap rate.³²⁰
- 3.220 This evidence indicates that preference shares have a margin above the benchmark cost of debt that is far more than a one-notch downgrade in credit rating. We note Incenta's observation that this data needs to be used with caution because of the ranges identified in the analysis, and because the margins are likely to be overstated due to the liquidity premia associated with these yields. We also note that Incenta's data on preference shares was from Australian banks and other financial institutions which may have less risk than preference shares for an FFLAS provider.
- 3.221 Another consideration is the weight that should be applied to each component of Crown financing. While the weight assigned to equity securities remains constant at 50%, the weights assigned to senior and subordinated debt change over time according to a formula.³²¹ We consider that the financing rate should be calculated using the actual weights in the agreement for a particular year, as this better gives effect to s 171(2) and s 177(3)(b) which refers to the actual costs of financing.
- 3.222 Given the uncertainty associated with the yields for each component of Crown financing, we have considered the option of using a proxy for the weighted average yield. Chorus has proposed that we use BBB- as the proxy. This assumes that the higher yield for the equity securities is offset by the lower yield for the senior debt securities. However, given that the equity securities have a higher weight than the senior debt securities we do not consider that the weighted average yield can be as low as BBB-.

³¹⁸ Incenta "Chorus's actual financing costs for Crown-financed investment" (July 2019), paragraph 64.

³¹⁹ Ibid, paragraph 69.

³²⁰ Incenta "Chorus's actual financing costs for Crown-financed investment" (July 2019), paragraph 70.

³²¹ See footnote 304. The weight assigned to subordinated debt gradually decreases over time.

- 3.223 We have decided to use the weights in the agreement, the yield for benchmark debt, the premium of 41 basis points for subordinated debt and a proxy for the equity yield. The options for determining a proxy for the equity yield include taking:
- 3.223.1 Incenta's estimate for preference shares; or
 - 3.223.2 a notch below Incenta's estimates for junior subordinated debt, given that the equity securities rank below junior subordinated debt; or
 - 3.223.3 a point within a wider range: benchmark debt and benchmark equity.
- 3.224 A problem with the first and second options is that they rely on estimates of yields that have high variances. The third option does not have this problem; however, it requires an exercise of judgment to establish a point in the range.
- 3.225 Given the practical difficulties associated with estimating the yield on a financial product which is tailored to the roll-out of UFB and scarcity of information on which to base an estimate, we have used our judgement and reached our best view by picking a point in the range.
- 3.226 We consider an estimate which best gives effect to s 171(2) and s 177(3)(b) reflects the evidence on the nature of the equity securities. In particular, we note that Standard & Poor's has assigned a 100% equity weight to the equity securities. We also have taken into account the subordination ranking of these equity securities being before ordinary equity and behind subordinated debt. Consequently, we consider applying a weighting of 75% to the benchmark cost of equity and 25% to the benchmark cost of debt best reflects the evidence before us.
- 3.227 Our method for valuing the financial instruments results in:
- 3.227.1 an equity margin above the risk-free rate of 4.15%;
 - 3.227.2 a senior debt margin above the risk-free rate of 1.80%;
 - 3.227.3 a subordinated debt margin above the risk-free rate of 2.21%; and
 - 3.227.4 a total margin above the risk-free rate of 3.10% (assuming a weighting of 50% equity, 20% senior debt and 30% subordinated debt).³²²
- 3.228 We have checked the reasonableness of our method of valuing the equity securities by comparing our method with other indicators.

³²² This assumes an asset beta of 0.5, TAMRP of 7%, debt margin of 1.6%, debt issuance costs of 0.2% and leverage of 29%, which are consistent with this decision.

- 3.228.1 The finance rate using our method, the parameters set in the IMs, and the risk-free rate that we used in our July 2020 decision for airports, gas and electricity business, is 3.53%.³²³
- 3.228.2 The benchmark vanilla WACC using the same parameters as above, is 4.45%.
- 3.228.3 The finance rate using Incenta's estimates of the value of preference shares combined with our estimates of the values of senior and subordinated debt, is between 3.50% and 3.70%.
- 3.228.4 The finance rate using Incenta's estimate of the value of junior subordinated debt, combined with our estimates of the values of senior and subordinated debt, is 3.32%
- 3.228.5 The finance rate using Chorus' proposal to use BBB- is 2.64%.
- 3.228.6 The finance rate using the average discount rates in Chorus' fair value reporting of its Crown debt and equity securities for 30 June 2020 is 5.2%.³²⁴
- 3.229 Our method produces a value that is similar to the value using Incenta's evidence on preference shares and slightly higher than the value using Incenta's evidence on junior subordinated debt. On this basis, we consider our method is reasonable.
- 3.230 We note the other factors L1 Capital have pointed to as an additional cost associated with Crown Financing due to terms of the contract for UFB.³²⁵ These do not alter our view on our weighting of equity and debt in estimating the value of the CIP equity securities which represent how close to equity or debt these securities are rather than the underlying systematic risk and bankruptcy exposure.

³²³ This assumes the same parameters as in the previous paragraph and a risk-free rate of 0.43%.

³²⁴ We note that over the annual reports issued since Chorus was listed as a separate entity, its auditors have estimated the relevant discount rate for establishing the fair value of the debt and equity components of Crown financing. We have used midpoints of the cost of debt and cost of equity (4.7% and 5.7%, respectively). Chorus has not specified the risk-free rate underlying these estimates. Chorus 2020 Annual Report, page 50. In previous annual reports, the differential between the mid-point of the estimated ranges of the cost of debt and equity has varied substantially, from 100 basis points in 2020 to 477 basis points in 2016. The average difference between the midpoints of the cost of debt and the cost of equity is 288 basis points.

³²⁵ L1 Capital (13 August 2020), page 2.

- 3.231 In reaching our final decision we have placed some weight on the treatment of these equity securities as equity by Standard & Poor's. They are an independent ratings agency which is providing independent views to assist investment and their ratings have important implications for the financing costs firms face. If at a future point they change their view about the nature of the Crown financing for Chorus, we will consider the implications to our estimate and whether we should reopen the IM.
- 3.232 When considering the approach for other LFCs not subject to price-quality regulation we consider a less precise approach can be taken. The purpose of these calculations for ID purposes is to provide a benchmark to allow interested parties to assess performance against. Inherent in this is interested parties can assess the impact of changes to the finance rate used in the calculation and the LFCs can provide evidence as to why the finance rate may vary from our benchmarks.
- 3.233 Consequently, we have specified the following benchmark finance rates for the other LFCs:
 - 3.233.1 Where Crown finance is provided as debt, we will use the benchmark cost of debt;
 - 3.233.2 Where Crown finance is provided as equity, we will use the benchmark cost of equity;
 - 3.233.3 Where Crown finance is a combination of debt and equity, we will use the benchmark cost of equity and benchmark cost of debt with the debt/equity mix of the Crown funding.

Incentives for early repayment in the post-implementation period

- 3.234 In the draft decision for further consultation, we were concerned that it may be increasingly easy for Chorus to refinance Crown financing at the benchmark cost of debt, and that early repayment during the post-implementation period may have a detrimental cost impost on end-users.
- 3.235 We were concerned that Chorus may be incentivised to repay early because repayments increase the maximum allowable revenue calculation, and therefore if Chorus repaid early then the present value of the repayments would increase. As a result, end-users would pay more than if Chorus had not made early repayments.
- 3.236 In order to minimise the risk of the regulatory setting incentivising Chorus to repay Crown financing early, our draft decision for further consultation was to use the regulatory WACC with a discount of 25 basis points for Chorus as the financing rate in determining the benefit of Crown financing in relation the post-implementation period. The discount of 25 basis points was based on judgement.

- 3.237 An alternative that was presented in the further consultation paper was to fix the repayments for regulatory purposes so that the maximum allowable revenue would be based on an assumed rather than actual repayment schedule. The advantage of this approach is that end-users would not pay more if Chorus repaid early.
- 3.238 As noted above in paragraphs 3.188 to 3.191 above, this alternative was preferred by Spark, Vocus and Vodafone over our draft proposal. They support the alternative primarily because it is consistent with the standard regulatory approach of setting benchmark financing arrangements without reference to a firm's actual repayment or financing commitments.
- 3.239 Chorus did not agree with fixing the repayments for regulatory purposes. Chorus submitted that we must reflect the actual financing costs incurred and that we have no discretion to introduce incentives.³²⁶
- 3.240 In response to Chorus' concern that assuming the repayments are fixed would influence its incentives, we consider that those incentives only arise because of the regulatory regime. Nevertheless, we agree that if we assumed the repayments are fixed it would interfere with the option Chorus has to redeem the Crown equity securities at any time. That is, it would remove any financial incentive Chorus has to repay its equity securities early. For this reason, we have assumed the repayment schedule is not fixed.

Differences between the pre and post-implementation periods

- 3.241 We have considered whether the finance rate should be lower in the post-implementation period than in the pre-implementation period. It is possible that at some point Chorus could replace Crown funding with private debt at a rate that is less than the average finance rate we are assuming.
- 3.242 However, we do not consider the legislation allows us to use a finance rate that is inconsistent with the types of securities that are in the contract with the Crown as this would not reflect the actual financing costs of Crown financing.
- 3.243 We therefore consider we should account for Crown financing in the same way in the pre and post-implementation periods.

Present value calculation

- 3.244 There has been considerable debate about the way we should account for Crown financing in the financial modelling of the financial loss asset or maximum allowable revenue.

³²⁶ Chorus "Cross-submission on the Commerce Commission's fibre input methodologies – further consultation draft reasons paper" (3 September 2020), paragraphs 18 to 20.

- 3.245 In the draft decision for further consultation, we calculated the present value of the benefit of Crown financing as the difference between the sum of the annual amount of Crown financing received and the sum of the present value of annual Crown financing. We used the benchmark WACC in the present value formula.
- 3.246 This method is suitable if the finance rate is the benchmark WACC. However, if the finance rate is not the benchmark WACC (which it is not in our final decision), the present value calculation is incorrect.
- 3.247 Dr Lally and Incenta have proposed adjustments to the WACC formula to account for Crown financing.³²⁷ We are satisfied that these adjustments to the WACC formula are correct. However, we have decided not to use an adjusted WACC in the calculation of the financial loss asset because there is a more straightforward method that produces a consistent answer.
- 3.248 Our preferred method is to:
- 3.248.1 use the unadjusted benchmark WACC to calculate the present value of the revenue and cost items (for either the calculation of the financial loss asset or the calculation of maximum allowable revenue); and
 - 3.248.2 calculate the benefit of Crown financing separately as the present value of the annual benefits of Crown financing; where
 - 3.248.3 the annual benefits of Crown financing are calculated as the finance rate applicable to the provider multiplied by the balance of Crown financing outstanding; and
 - 3.248.4 the present value of the annual benefits of Crown financing is calculated using the unadjusted benchmark WACC.
- 3.249 Incenta proposed that we use the finance rate (which they proposed to be the BBB-debt rate) to calculate the present value of the benefit of Crown financing.³²⁸
- 3.250 We disagree with Incenta that the present value calculation should use the finance rate. The present value calculated using Incenta's (or Dr Lally's) adjusted WACC is replicated by using the finance rate in the calculation of the annual benefit of Crown financing and the benchmark WACC in the calculation of the present value.

³²⁷ See Dr Martin Lally “Review of submissions on the cost of capital for fibre network losses” (12 November 2019), page 10; and Incenta “Crown financing – issues raised in further paper by Dr Lally” (August 2020), section 2.1.2.

³²⁸ Incenta “Crown financing – issues raised in further paper by Dr Lally” (August 2020), section 2.1.3.

- 3.251 Our full methodology for determining the present value benefit of Crown financing before the implementation date will be specified in a separate schedule in the IMs (Schedule B) as part of our determination accompanying our final decisions on the initial value of the financial loss asset, to be published on 3 November 2020. We note that the content in Schedule B has not been determined yet and has been subject to a separate consultation process.

Illustration of the post-implementation approach in the context of PQ regulation

- 3.252 The box below illustrates the building blocks calculation for Chorus, including the calculation of the benefit of Crown financing building block.

In the building blocks calculation used to determine the maximum allowable revenue for Chorus' PQ path we will:

calculate the return on assets by applying the benchmark WACC to the RAB; and
deduct the benefit of Crown financing building block.

The benefit of Crown financing building block is calculated for each year of the regulatory period as follows:

(Balance of Crown financing outstanding) x (Finance rate):

The finance rate is calculated using the 50:50 mix of debt and equity contained in the contract with the Crown where:

- The cost of debt is based on an estimate of senior and subordinated debt with the mix consistent with the contract with the Crown.
- The cost of equity is based on a 75% weighting to our benchmark cost of equity and 25% weighting to the benchmark cost of debt.

The benefit of Crown financing building block is a deduction in the calculation of the revenue or price cap.

Final Decisions: roll forward of the RAB

- 3.253 In the following section we discuss our final decisions with respect to the roll forward of the RAB, including:³²⁹
- 3.253.1 roll forward mechanism;
 - 3.253.2 core valuation rules for fibre assets added after implementation date;
 - 3.253.3 calculation of depreciation and financial loss asset amortisation;
 - 3.253.4 treatment of inflation; and

³²⁹ Refer to paragraph 3.9 for an explanation of the roll forward concept.

3.253.5 adjustments to the RAB following deregulation.

Final Decision: roll forward mechanism

- 3.254 Our final decision, which is unchanged from the draft decision, is that as part of calculating the annual building blocks allowable revenue the RAB roll forward will include a building block for the return of capital. The return of capital is recognised via a depreciation building block, while the return on capital is calculated as RAB times the cost of capital, as part of the building blocks allowable revenue.
- 3.255 A key part of calculating the annual building blocks allowable revenue for a regulated provider includes the calculation of the building blocks:
 - 3.255.1 depreciation (return of capital); and
 - 3.255.2 annual return (return on capital).
- 3.256 In a general building blocks model, the value of the RAB at the end of each year is generally determined—or “rolled forward” from the value at the start of the year by including the depreciation building block. The annual return on capital building block is calculated as RAB times the cost of capital, as part of the building blocks allowable revenue calculation.
- 3.257 For each year within the regulatory period, the RAB will have an opening (beginning of year) and closing (end of year) value. The difference between these two values is made up of a decline in value due to depreciation, an uplift for revaluation, capital additions (ie, newly built or acquired assets) and capital disposals.
- 3.258 We consider a one-year period for roll forward is appropriate for all regulated providers. This would align with a requirement to provide ID on an annual basis. For PQ regulation, the forecasting of the various building block components are also likely to be annual amounts, though the regulatory period will cover several years.³³⁰ Furthermore, this approach is generally consistent with Part 4.
- 3.259 The approach to capital additions will follow the core valuation rules set out above.³³¹ Disposals occur in respect of the sale or transfer of an asset by the

³³⁰ Under s 207 the first regulatory period starts on the implementation date (1 January 2022 and is for three years). The duration of subsequent regulatory periods must be between three and five years.

³³¹ As discussed above, assets are eligible to be included in the unallocated RAB where they are constructed or acquired by a regulated provider and employed in the provision of FFLAS. The value accorded to asset additions is generally the ‘cost’ incurred by the supplier in constructing or acquiring the asset determined under GAAP.

regulated provider and consist of removing the remaining value (sometimes called the ‘carrying value’) of the asset in the year of its disposal.³³²

- 3.260 We do not consider it necessary for any other adjustments (such as lost or found assets) to be included in the roll forward formula. This is because the UFB assets - which are expected to comprise the majority of the RAB (by value) - have been recently built and records regarding these assets are being maintained (for example, for statutory and current regulatory purposes).
- 3.261 The roll forward process interacts with cost allocation and the capex approval processes under PQ regulation, and the IMs that cover these areas. For example, the cost allocation IM will apply to assets shared between regulated FFLAS and other services and will impact the value of the asset in the allocated RAB. The Chorus capex IM provides for rules and processes relating to the approval of the capex additions (and therefore the expected RAB roll forward) that are considered when determining the maximum allowable revenue for a given regulatory period.
- 3.262 It should be noted that the roll forward process is undertaken for the unallocated RAB and the allocated RAB and is determined by applying the cost allocation IM.³³³
³³⁴
- 3.263 Chorus supports the calculation of the RAB roll-forward in this way, similar to that for Part 4.³³⁵

Final Decision: core valuation rules for core fibre assets added after implementation date

- 3.264 Our final decision, which is unchanged from the draft decision, is that post-implementation, the value of a core fibre asset is the cost incurred by a regulated provider in constructing or acquiring the fibre asset (net of capital contributions) and less any depreciation determined under GAAP (if relevant).³³⁶
- 3.265 The costs will enter the unallocated RAB when the asset is employed in providing FFLAS. Costs will then enter the allocated RAB by application of the cost allocation

³³² Note that where a regulated provider disposes of an asset, the closing RAB value of that asset, for the disclosure year in which the disposal occurs, is simply set to nil.

³³³ The total asset value of assets used to provide regulated FFLAS, including the value of assets that are shared.

³³⁴ The value of assets used in providing regulated FFLAS after applying the cost allocation IM. Similar to the unallocated RAB it includes all assets directly attributable to regulated FFLAS, but for shared assets it only includes the value attributable to regulated FFLAS.

³³⁵ Chorus “Submission on Fibre input methodologies – Draft decision (30 January 2020), page 33.

³³⁶ For example, a duct asset that has previously been used for providing non-FFLAS services but is subsequently employed to provide FFLAS will have existing accumulated depreciation that is excluded from the value to be shared with FFLAS.

IM, which will determine costs that are directly attributable and the costs not directly attributable to regulated FFLAS.

- 3.266 This approach will apply to any fibre assets added post-implementation, including repurposed assets.
- 3.267 Repurposed assets will enter at their net book value (net of GAAP depreciation) and only when they are available for use to provide FFLAS services. Further details on how repurposed assets enter the RAB are provided below.
- 3.268 Our final decision is that following implementation, the regulatory “cost” of an asset must be calculated net of any capital contributions and accounting depreciation.³³⁷ ³³⁸ We have adopted the same approach as that determining the initial value of fibre assets for the pre-implementation period.
- 3.269 For the avoidance of doubt, consistent with our final decisions for the cost of the pre-implementation assets, we will not make any revisions to the base cost of an asset to account for *ex-post* efficiency assessments once the asset is admitted to the RAB. We note that the base cost of assets will be subject to any treatment prescribed in the Chorus capex IM and the cost allocation IM.

Final Decision: valuation of assets repurposed for fibre use that are added to the RAB

- 3.270 Our final decision, which is unchanged from the draft decision, is that the repurposed assets are subject to the same core valuation rules that apply to any other assets that are added to the RAB after the implementation date. This approach has the advantage of being simple for regulated providers to understand and will enable them to calculate the cost of repurposed assets using their existing accounting systems.
- 3.271 We will ignore any pre-implementation revaluations applied by regulated providers, unless the asset was owned by Chorus before 1 December 2011 (see paragraph 3.114).
- 3.272 We expect there to be some assets that are currently used (wholly) for purposes other than providing regulated FFLAS, but which may be repurposed (whether

³³⁷ This is generally consistent with the approach under Part 4 where the “cost” of an asset is obtained using GAAP principles.

³³⁸ Spark and suppliers supported this approach. See Enable, Ultrafast Fibre and Northpower Fibre “Submission on new regulatory framework for fibre” (21 December 2018) page 14, Spark “Submission on new regulatory framework for fibre” (21 December 2018), paragraph 82 and Chorus “Submission on new regulatory framework for fibre” (21 December 2018) page 62. Northpower “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 10. Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 30.

wholly or partly) after the implementation date for use in the provision of regulated FFLAS.

- 3.273 Given these assets were initially used in the provision of an unregulated service (or a service subject to different regulatory control) this raises the question of when they should enter the RAB (as discussed earlier) and the value at which these assets should enter the RAB at when commissioned for FFLAS. To take account of that prior use, only the current value (or “carrying value”) of the asset should enter the RAB at the time of repurposing and therefore be eligible for recovery through fibre revenues.³³⁹ This approach is consistent with the FCM principle and ensures that regulated providers cannot over-recover the full costs of any repurposed assets through multiple revenue streams, meaning the likelihood of double recovery of costs across different types of services is reduced. It therefore gives effect to the Part 6 purpose in s 162(d), by ensuring that regulated providers are limited in their ability to extract excessive profits.
- 3.274 We considered an alternative of calculating the cost of repurposed assets under GAAP and subtracting the accumulated regulatory depreciation at the time of the entry of those assets into the RAB. This, however, would have required regulated providers to track a regulatory value (including regulatory depreciation) for all assets that might potentially be repurposed for delivery regulated FFLAS at a future date. It would also require us to account for the issue of regulatory revaluations. We consider the final decision better gives effect to the overall Part 6 purpose, for the reasons outlined at 3.273 above.
- 3.275 In addition, repurposed assets may be only partly used to provide regulated FFLAS. The value of assets that are partly allocated to regulated FFLAS will have their total value recorded in the unallocated RAB. The rules specified by the cost allocation IM are then applied to the unallocated RAB values, to establish the allocated RAB value for each asset. The allocated RAB will determine the total depreciation and return on capital for regulated FFLAS. As discussed in paragraph 3.148, the cost allocation IM specifies that the shared costs allocated to regulated FFLAS should be no higher than the unavoidable costs in a scenario where the services that are not regulated FFLAS are no longer provided.

Final Decision: calculation of depreciation

Regulated providers subject only to ID regulation

- 3.276 Our final decision is that a regulated provider subject only to ID regulation, or for a regulated provider subject to both information disclosure regulation and price-

³³⁹ The carrying value of the asset is determined by deducting accumulated GAAP depreciation from the original cost.

quality regulation in regulations made under s 226 of the Act who has assets that support the provision of ID-only FFLAS must:

- 3.276.1 apply a depreciation method under ID, or for ID-only assets, that is consistent with the expected time profile of revenue recovery it applies at the time of disclosure;³⁴⁰ and
 - 3.276.2 from implementation date, ensure the default depreciation method is one that is consistent with GAAP, but a regulated provider may apply an alternative method where this is necessary in order to achieve consistency with the expected time profile of revenue recovery.³⁴¹
- 3.277 Where a regulated provider chooses an alternative depreciation method, we will, when setting ID requirements, require the regulated provider, in line with ID requirements, to disclose and explain the key assumptions on which its depreciation method is based, including how these differ from the default method.

Regulated providers subject to both PQ and ID regulation

- 3.278 For a regulated provider subject to PQ regulation and for assets subject to PQ regulation (ie, excluding any assets of the regulated provider that are serving ID-only FFLAS), our final decisions are detailed below.
- 3.278.1 To determine a depreciation method consistent with GAAP as default, or an alternative method for some or all assets.
 - 3.278.2 Where a regulated provider applies an alternative depreciation method, the Commission must be satisfied that the result of applying the alternative method:
 - 3.278.2.1 better promotes the purpose of Part 6 of the Act;
 - 3.278.2.2 where relevant, best gives, or is likely to best give, effect to s 166(2)(b) of the Act; and
 - 3.278.2.3 where relevant, is consistent with the Commission's smoothing, to the extent it is achieved via depreciation, of prices or revenue under s 197 of the Act.

³⁴⁰ That is, ensuring that depreciation is forecast to match the revenue that can be generated from forecast uptake levels and prices.

³⁴¹ GAAP typically sets a straight-line depreciation method over a set life. As this spreads costs equally over the life of the asset, this may not match the ability to generate revenue when customer numbers are growing over time, as is the case with the UFB initiative.

- 3.278.3 With respect to future regulatory periods, the regulated provider may only adopt a different depreciation method after the first regulatory period if the Commission is satisfied that the new method:
- 3.278.3.1 better promotes the purpose of Part 6 of the Act;
 - 3.278.3.2 where relevant, best gives, or is likely to best give, effect to s 166(2)(b) of the Act; and
 - 3.278.3.3 is consistent with the Commission's smoothing, to the extent it is achieved via depreciation, of prices or revenue under s 197 of the Act.
- 3.279 Under ID regulation, the regulated provider must apply the depreciation method consistent with the PQ regulation determination that applies in the year of the disclosure. In other words, once the PQ depreciation method is set, it must be applied consistently when making ID disclosures, a different method cannot be applied under ID.
- 3.280 Our rationale for this is that depreciation spreads costs over time in a manner that seeks to broadly reflect service uptake.
- 3.281 When the useful life of an asset extends beyond one year, an annual depreciation allowance is applied to that asset. This recognises and allocates the recovery of the initial investment over the years of the expected life of the asset.
- 3.282 Under a building blocks approach, depreciation is a key component that allows for the return of the original capital investment over time. Under PQ regulation, the depreciation allowed each year can have a significant impact on the level of revenue for that year. Under ID regulation, depreciation is a key input into profitability assessments.
- 3.283 From a regulatory perspective, we want depreciation to reflect the decline in value of an asset over time in a way that is broadly aligned with the user uptake of the service supported by the asset, all other things being equal, and determines how the cost is allocated to end-users over time to determine prices.³⁴²
- 3.284 An alternative we considered was simply requiring regulated providers to apply straight-line depreciation for both the core fibre asset RAB and for amortising the financial loss asset, for simplicity, transparency and ease of comparison between regulated providers.

³⁴² Note that the depreciation rules in this IM includes consideration of any asset lives used in determining depreciation. For example, to the extent a regulated provider applies straight line depreciation, the asset lives are a key input for that depreciation method.

- 3.285 After consideration of submissions and relevant experience from Part 4 regulation we have rejected the straight-line depreciation option. We consider this approach allows us to best give effect to the s 162(a) and (d) objectives. On balance, we also consider that allowing regulated providers the opportunity to request the application of an alternative depreciation approach and, where the Commission is satisfied that this alternative approach best gives, or is likely to best give effect to s 166(2)(b) of the Act, that this will be better aligned with outcomes in workably competitive markets. For example, an alternative approach may be more likely to ensure that the maximum allowable revenue requirement determined is attainable, given the forecast end-user uptake and to avoid early adopters being charged an excessively high amount compared with later adopters. Straight-line depreciation, on the other hand, would assume equal benefits across each period, so initially a small number of end-users would bear the same depreciation cost as a much larger number of end-users once the project reaches a more mature stage. This is a scenario we are seeking to avoid as it may produce an unobtainable revenue requirement and the need for the Commission to apply smoothing.
- 3.286 Our final decisions apply to both the core fibre asset RAB and the financial loss asset. They also take account of the impact of regulations made under s 226. We consider that the core fibre asset RAB fibre assets, and the financial loss asset are two distinct and separate types of assets. Regulated providers will therefore need to ensure the depreciation information that relates to each type of asset within the RAB is separately identifiable.
- Consideration of the asset life to apply to the financial loss asset*
- 3.287 The financial loss asset is a special case asset that combines various unrecovered returns. Given the nature of this asset, the weighted average life of the UFB-related core fibre assets³⁴³ in the initial RAB is an appropriate default choice of asset life to apply to the financial loss asset.³⁴⁴ The weighted average life of the UFB-related core fibre assets will provide a logical starting point for the assumed life of the loss asset, given it reflects the general average life of the assets employed to provide FFLAS and that the financial loss was incurred by the provider in providing fibre fixed line access services under the UFB initiative. The alternative would be to assume an arbitrary life, which may be open to manipulation.
- 3.288 A regulated provider will depreciate the financial loss asset using an asset life that is either:

³⁴³ Core fibre assets that were UFB assets prior to the implementation date.

³⁴⁴ Enable and Ultrafast support the setting of a default asset life based on the weighted average of the remaining life of the core fibre asset base. See Enable and Ultrafast "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 13.3.

- 3.288.1 the period equivalent to the weighted average life of the UFB-related core fibre assets in an initial RAB as at the implementation date, where the weights used are the initial RAB values of those UFB-related core fibre assets; or
- 3.288.2 a period adopted by the regulated provider under an alternative method, subject to approval by the Commission for PQ regulated providers.

Asset lives in general

- 3.289 In its submission, Spark suggested the Commission could determine standard asset lives (eg, under ID regulation) to provide transparency, enable comparisons and help with smoothing:³⁴⁵

We support the Commission applying its discretion to setting depreciation. In addition to the smoothing of revenues, the Commission may wish to give itself the ability to set accelerate depreciation to reduce risk over the life of assets. **However, the Commission should also specify technical asset lives through information disclosure to provide a benchmark against which any departure for the reasons set out in the draft occur.**

- 3.290 Spark also discussed what it considers to be the benefits of the Commission setting standard asset lives. This includes reference to the Commission setting standard lives in regulation under Part 4.³⁴⁶
- 3.291 The standard asset lives that exist under Part 4 for EDBs have developed from many years of industry experience and are generally accepted within the electricity industry. This wide acceptance led to their adoption under IMs. Some of the assets deployed in the fibre rollout are relatively recent technical developments, with less history to inform a consideration of asset life.
- 3.292 We consider that GAAP provides a useful framework to inform regulated providers' choice of asset lives and depreciation method. GAAP already provides rules for determining asset lives, and we are not aware of a better source of asset lives for use in regulation under Part 6. We consider that GAAP provides a robust basis for setting asset lives, which can be modified should this be necessary later.
- 3.293 We have already provided the ability for regulated providers to adjust asset lives from the values set by GAAP, or to propose an adjustment (refer to the determination at clauses 2.2.7, 2.2.8 and 2.2.10). We have not set standard asset lives.

³⁴⁵ Spark "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 10.

³⁴⁶ Ibid, paragraphs 43-48.

3.294 The key differences between our depreciation treatment for regulated providers subject to different forms of regulation are as follows.

3.294.1 **A regulated provider subject only to ID regulation** must ensure that the depreciation method it applies is consistent with the expected time profile of revenue recovery. This ensures that the depreciation information disclosed under ID is a useful input into the assessment of that regulated provider's profitability, while ensuring that regulated providers are free to set prices as they see fit.

3.294.2 **For a regulated provider subject to both PQ and ID regulation**, the Commission will determine the depreciation profile to be reflected in the maximum allowable revenue. In doing so, the Commission will consider:³⁴⁷

3.294.2.1 the purpose of Part 6 in s 162, in particular:

3.294.2.2 incentives to innovate and to invest, including in upgrading and replacing existing assets, and purchasing new assets (in line with s 162(a)); and

3.294.2.3 limiting regulated providers' ability to extract excessive profits (s 162(d)); and

3.294.2.4 smoothing provisions (s 197), to the extent smoothing is achieved via depreciation.

3.295 Our experience from airport ID regulation under Part 4 shows that a key requirement for meaningful performance assessments is consistency between depreciation and the expected time profile of revenue recovery.³⁴⁸

3.296 Airports are subject only to ID under Part 4 and can set their prices 'as they see fit'. In our initial regulatory rules under Part 4 we prescribed straight-line depreciation as the method for calculation of depreciation. Generally, airports used different depreciation methods for setting prices, which meant that performance assessments

³⁴⁷ The depreciation profile refers to the specific overall amount of the return of capital assumed over a given period of time, such as a regulatory period. We distinguish the depreciation profile from the depreciation method, which sets out how depreciation is calculated mathematically, but allows a range of profiles of return to be generated. For example, straight-line depreciation will produce different profiles of return based on the asset life assumed.

³⁴⁸ Note that the depreciation method for the initial asset values is set in s 177 (1).

based on a straight-line depreciation calculation under ID combined with pricing information (based on commercial business rules) provided only limited insights.³⁴⁹

- 3.297 We consider that the same lesson applies to regulated providers subject only to ID regulation. Similar to airports, these regulated providers are not required to apply any regulatory accounting rules when setting prices.³⁵⁰
- 3.298 Our final decision requires regulated providers to disclose depreciation in a manner consistent with the expected time profile of revenue recovery. We consider that this requirement, together with transparency on key assumptions explained in ID, will ensure that interested persons have meaningful information to assess the performance of regulated providers over time. Disclosing depreciation in a manner consistent with the setting of pricing will provide a more reliable comparison of the actual returns achieved.³⁵¹
- 3.299 This will help stakeholders assess whether the prices set by regulated providers are consistent with the Part 6 purpose, in particular, s 162(d) (ensuring regulated providers are limited in their ability to extract excessive profits).
- 3.300 We consider that annual information disclosure, under ID regulation, is the appropriate place for regulated providers to explain the basis for adopting a particular depreciation method (including the extent to which it differs between the core fibre asset RAB and the financial loss asset). We consider that GAAP provides a useful framework within which regulated providers can develop their depreciation method choices and have made it the default approach accordingly. When regulated providers are explaining any alternative approach, they will need to demonstrate the impact of the alternative method compared to the default GAAP approach. For example, how does the alternative method move the proportion of the asset recovered towards future users rather than today's users, compared to the GAAP method?
- 3.301 A regulated provider subject to PQ and ID regulation for certain end-users³⁵² is subject to a cap on maximum revenues recoverable over a regulatory period. A key consideration in reaching our final decision was whether, on balance, a more flexible or a more prescriptive approach better promotes the Part 6 purpose.

³⁴⁹ For further discussion of the reasons for this change refer to Commerce Commission “Input methodologies review decisions - Topic paper 5: Airports profitability assessment” (20 December 2016).

³⁵⁰ We note that airports have set ‘pricing periods’. Fibre service providers subject to IDs do not have regulatory rules on when prices may change. In our draft decision we have linked depreciation to prices that apply at the time. We may have to refine this assumption for the final decision.

³⁵¹ That is, the revenues based on prices set for the period under review will be consistent with the expected return of capital via the depreciation method actually used to set the pricing.

³⁵² Noting that some of their end-users may be subject to ID-only regulation.

- 3.302 The starting point is that depreciation seeks to reflect the decline in value of an asset over time in a way that is broadly aligned with the ability to recover the costs of the asset from end-users while maintaining acceptable price levels. A service with significant scope for sustained end-user growth, such as Chorus' service at the start of implementation, may be expected to push the profile of cost recovery into the future.
- 3.303 Recovering a given cost from a smaller end-user base (ie, over the short term) can be expected to result in a higher end-user price than if the cost was recovered from a larger end-user base (ie, the longer term). A regulated provider seeking to recover its costs must balance the impact of higher end-user prices on service uptake against other factors, such as asset stranding risk in the longer term (eg, due to emerging competition).³⁵³
- 3.304 In line with the economic principle of allocation of risk, we consider that regulated providers subject to PQ regulation are best placed to manage the risks of cost recovery from lower uptake in the near term versus asset stranding in the longer term should competition emerge. These regulated providers will have incentives to choose a depreciation approach that is more likely to result in a time profile of cost recovery that is in the long-term interest of end-users, than an approach prescribed by regulation (such as the requirement to apply straight-line depreciation in all cases).
- 3.305 The Commission must, however, be satisfied that any depreciation profile that a regulated provider applies best promotes the purpose of the Act and is consistent, to the extent it is achieved via depreciation, with s 197, the smoothing provision. That provision provides that the Commission must calculate the maximum revenue in a manner that is equivalent in present value terms over two or more regulatory periods (for example, by altering depreciation), if, in the Commission's opinion it is necessary or desirable to do so to minimise any undue financial hardship to a regulated provider or to minimise price shocks to end-users.
- 3.306 To assist with the determination of the profile of revenue recovery, we consider that GAAP provides a useful framework to inform regulated providers' depreciation method under the asset valuation IM. As such, we have made it the 'default' approach. When proposing an alternative method, we consider it useful to understand the impact of the alternative compared to the default method. While we consider a flexible approach to depreciation in the IM rules is on balance preferable to a prescriptive approach, in determining the depreciation approach we will consider a regulated provider's proposal in light of s 162 and s 197 of the Act.

³⁵³ Uptake depends on end-users' price-sensitivity and factors such as the availability of substitutes (eg, copper or mobile services).

- 3.307 We consider that retaining approval over the depreciation method that regulated providers adopt under PQ regulation is sufficient to shape the time profile of revenue recovery. This approach will allow us to balance outcomes required under s 197 against the requirement that we make a decision that best gives effect to the purpose in s 162 (a) and (d).
- 3.308 Submitters generally supported our approach. For example, Chorus agrees with our decision to apply a default depreciation method consistent with GAAP with the ability to put forward an alternative depreciation method for some or all assets in the PQ proposal.³⁵⁴

3.309 Enable, Ultrafast and Northpower were also supportive of our decision.³⁵⁵

Interaction of asset valuation IM with our treatment of asymmetric risk

- 3.310 In this section we provide further context on how the application of the asset valuation IM under PQ regulation will interact with our overall treatment of asymmetric risk (refer to the Asymmetric risk section below).
- 3.311 There is a risk that regulated providers might be exposed to asset stranding, given the dynamic nature of telecommunication markets and the inherent risk that advances in technology might render certain assets redundant after a period of time. Our final decision to allow a regulated provider flexibility regarding the depreciation method and asset lives (refer to previous section) may help mitigate this risk.
- 3.312 An additional measure is our final decision to allow for a small *ex-ante* allowance to compensate regulated providers for asset stranding risk, as discussed in the Asymmetric risk section of the WACC chapter below starting at paragraph 6.984. This raises the possibility of inconsistency between the *ex-ante* allowance and any amendments to the depreciation method and asset lives over time. The Commission will consider this when determining whether the alternative depreciation method should be approved.
- 3.313 A consideration that will be relevant to our determination of the depreciation method for regulated providers subject to both PQ and ID regulation will be whether the overall risk mitigation package (including the small *ex-ante* allowance for asset stranding, and any adjustments to depreciation) best promotes the Part 6 purpose.

³⁵⁴ Chorus “Submission on Fibre input methodologies – Draft decision (30 January 2020), page 33.

³⁵⁵ Enable and Ultrafast “Submission on Fibre input methodologies – Draft decision (30 January 2020), paragraphs 8.24 and 8.25; Northpower “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 10.

Treatment of fibre assets destroyed by catastrophic events

- 3.314 When fibre assets are destroyed, where this is the result of a type 1 catastrophic event, such as natural disasters, these assets may need to be removed from the RAB. Under the relevant Part 4 definitions, damaged or destroyed assets that are “irrecoverably removed from the regulated provider’s possession without consent” are treated as disposed assets and will be removed from the RAB. Damaged assets that are left in situ or are removed and placed in storage (but remain in the possession of the supplier) are not considered “disposed” and will remain in the RAB.
- 3.315 Our final decision is to adopt these definitions for the fibre asset valuation IMs as they have proved workable for Part 4, including in the context of the Canterbury earthquakes. Further, as noted in the section of the WACC chapter on Asymmetric Risk, appropriate *ex-post* compensation mechanisms will be developed as part of the PQ path to address this risk. These mechanisms may include allowing clawback for a portion of the net costs (ie, net of insurance proceeds) associated with the catastrophic event, where assets are damaged and destroyed.
- 3.316 The rules and processes IM consider the circumstances under which the Commission can re-open a price path for a catastrophic event. We also note that a wash-up mechanism that compensates regulated providers for any under-recovery (or over-recovery) of revenue will apply in accordance with s 196. As noted in discussion on Asymmetric risk, this wash-up mechanism significantly mitigates demand risk as a result of a catastrophic event.

Final Decisions: Treatment of inflation

- 3.317 As discussed in paragraph 2.280.1 of the Framework Chapter, FCM is one of the key economic principles adopted to assist us in implementing the Part 6 regulatory regime. A key consideration in providing an *ex-ante* expectation of real FCM is how investors are compensated for inflation.
- 3.318 Our final decision is to provide compensation for inflation through the indexation (ie, revaluation) of both the core fibre asset RAB and the financial loss asset as part of the roll forward process.
- 3.319 The indexation approach we have adopted is the approach generally adopted in New Zealand economic regulation.³⁵⁶
- 3.320 For regulated providers subject to both PQ and ID regulation, indexation will involve:
 - 3.320.1 determining a nominal regulatory WACC (which inherently incorporates inflation expectations at the time it is calculated);

³⁵⁶ For example, it is adopted under Part 4, except for Transpower.

- 3.320.2 indexing the RAB (ie, revaluing it) to account for forecast CPI inflation for each year of the PQ path regulatory period (based on Reserve Bank inflation forecasts and the mid-point of its inflation target);
- 3.320.3 treating increases in asset value due to revaluations as income and deducting this income from the calculated building block revenue requirement. Recognising the revaluation gain as income avoids providing double compensation to regulated providers for inflation (ie, once via the nominal regulatory WACC and then a second time through the increase in asset value); and
- 3.320.4 rolling forward the RAB under ID from year-to-year using actual, rather than forecast, inflation. This approach means that at the time of the next price reset, opening RAB values will have been maintained in real terms.

3.321 For regulated providers subject only to ID regulation, indexation will involve:

- 3.321.1 rolling forward the RAB under ID from year-to-year using actual inflation; and
- 3.321.2 determining a nominal regulatory WACC (which inherently incorporates inflation expectations at the time it is calculated) for use in profitability assessment.

Alternative options considered for compensating regulated providers for inflation risk

3.322 In reaching our decision, we have also considered alternative ways to compensating for inflation:

- 3.322.1 the unindexed RAB approach; and
- 3.322.2 a real WACC approach.

3.323 The unindexed RAB approach used for Transpower regulation under Part 4 is to provide investors an opportunity *ex-ante* to earn a normal return by:³⁵⁷

- 3.323.1 determining a nominal WACC (which incorporates inflation expectations at the time it is calculated); and
- 3.323.2 not indexing the RAB.

³⁵⁷ The reasons for using this approach for Transpower are explained in Commerce Commission, Input methodologies review draft decisions Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower (16 June 2016), chapter 6.

- 3.324 The unindexed RAB approach ensures that *ex-post* returns are maintained in nominal terms, but generally not in real terms.³⁵⁸
- 3.325 Another approach often used in other jurisdictions, such as the United Kingdom, is to provide investors an opportunity to earn a normal return by:
- 3.325.1 determining a real WACC; and
 - 3.325.2 indexing the RAB for actual inflation.
- 3.326 Our final decision approach and the ‘real WACC approach’ ensure that *ex-post* returns are maintained in real terms, but not in nominal terms (unless actual inflation equals forecast inflation, as incorporated through the inflation expectations inherent in the nominal WACC).
- 3.327 The reasons for our final decisions on the compensation for inflation risk in the asset valuation IM, relate to *ex-ante* real FCM, the allocation of risk, the approach to WACC, and the inflation measure used in the RAB indexation. In summary, our reasons are detailed below.
- 3.327.1 ***Ex-ante* real FCM.** Our chosen approach, and the two alternatives set out at 3.323-3.326 above are all consistent with our principle of *ex-ante* real FCM and provide investors with an *ex-ante* expectation of compensation for inflation. Providing regulated providers with compensation for inflation risk, and therefore ensuring that our approach to asset valuation is consistent with *ex-ante* FCM preserves incentives for regulated providers to innovate and invest. This approach therefore gives effect to the Part 6 purpose at s 162(a).
 - 3.327.2 **Risk allocation.** If we were to take steps to eliminate the risk that equity holders do not achieve a real return *ex-post* from a regulated provider’s perspective, this would mean exposing end-users to this inflation risk instead. We consider that regulated providers are better placed to manage this risk than end-users. The approach we have adopted for indexing the RAB is therefore consistent with the economic principle of allocating risks to those best placed to manage them.
 - 3.327.3 **Nominal WACC.** An approach that relies on nominal WACC is the approach generally adopted in New Zealand economic regulation due,

³⁵⁸ Ex-post returns are maintained in real terms where actual inflation equals forecast inflation. In this specific (and unlikely) scenario, actual inflation would be equal to the inflation expectations inherent in the nominal WACC).

among other reasons, to the absence of data to reliably estimate a real WACC (refer to paragraphs 3.332 to 3.335)

- 3.327.4 **Indexed RAB.** We have adopted RAB indexation as part of the approach to compensating investors for inflation. The main reason some submitters suggested adopting an unindexed RAB under Part 6 is to manage stranding risk. We do not consider that the adoption of an unindexed RAB is required as a measure to mitigate stranding risk under Part 6. (refer to paragraphs 3.339 to 3.357)
- 3.327.5 **CPI inflation:** We have adopted the CPI inflation rate for indexation because it produces greater certainty than alternative approaches such as the market value or producer price indexing approaches (refer to paragraphs 3.348 to 3.352)
- 3.328 **Issue of consistency between forecast CPI and inflation expectations in WACC.** We are not aware of any alternative approaches to CPI forecasting that are more likely to be consistent with the inflation expectations inherent in our calculation of regulatory WACC than our final decision approach (refer to paragraph 3.353 to 3.357).
- 3.329 **General use of forecast CPI (rather than actual CPI in some instances).** This approach exposes both end-users and regulated providers to inflation risk. We prefer to use actual CPI for revaluing the RAB under ID regulation, because we place greater weight on protecting the real expenditures by consumers, and real FCM for suppliers, from inflation shocks (refer to 3.362 to 3.366).
- 3.330 By ensuring compliance with FCM and appropriately balancing inflation risk allocation, our final decision best serves the purpose in s 162.

Nominal WACC is the approach generally adopted in New Zealand

- 3.331 In New Zealand, economic regulation generally relies on approaches that use a nominal WACC.
- 3.332 In principle, use of a real WACC with an indexed RAB —the real WACC approach referred to above — would be a simple, direct way of providing an *ex-ante* expectation of real FCM. A real WACC approach also has the benefit of simplicity and is easy to understand.
- 3.333 One reason why the real WACC approach has generally not been adopted in New Zealand is that the information required for estimating a real WACC is not readily available. We also have not adopted this approach for that reason.

3.334 For example, a paper published by Te Tai Ōhanga - The Treasury in May 2019 states that:³⁵⁹

- 3.334.1 real WACC estimation requires robust information on index-linked bonds;
 - 3.334.2 the inflation-indexed bond market is generally less liquid than nominal bonds;
 - 3.334.3 in the absence of certain New Zealand-specific data, the impact of the inflation risk premium is difficult to quantify but may explain the difference between forecast inflation and break-even inflation plus inflation-indexed price adjustment; and
 - 3.334.4 the Treasury is not aware of any reliable and relevant information which can be used to assess the inflation risk premium.
- 3.335 Setting aside difficulties with estimating a real WACC in New Zealand, we do not consider that moving to an approach involving a real WACC with an indexed RAB would be better at providing an *ex-ante* expectation of a normal return than our final decision approach (which is the same approach we also generally apply under Part 4).
- 3.336 While the nominal WACC approach we are adopting in our final decision is well understood, we are aware there is an inherent risk that equity holders do not achieve a real return *ex-post*.³⁶⁰ This is because regulated providers tend to issue debt that is fixed in nominal terms, whereas we provide an allowance for a real return, taking into account outturn inflation. We have concluded that this risk is small and symmetric, and one that regulated providers can exercise some control over (eg, by issuing inflation-indexed debt).
- 3.337 Furthermore, taking steps to eliminate the risk that equity holders do not achieve a real return *ex-post* from a regulated provider's perspective would mean exposing end-users to an inflation risk, and we consider that regulated providers are better placed to manage this risk than end-users. Thus, the approach we have adopted for indexing the RAB is consistent with the economic principle of allocating risks to those best placed to manage them.

³⁵⁹ The Treasury "Risk-Free Discount Rates and CPI Inflation" (21 May 2019), page 24.

³⁶⁰ We previously considered this in our review of input methodologies under Part 4, Commerce Commission "Input methodologies review draft decisions Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower" (16 June 2016) , paragraph 215

https://comcom.govt.nz/_data/assets/pdf_file/0014/60233/Input-methodologies-review-draft-decisions-Consolidated-package-of-16-June-2016-draft-decisions-papers-16-June-2016.pdf

- 3.338 Providing compensation for inflation, and therefore ensuring that our approach to asset valuation is consistent with *ex-ante* FCM means that regulated providers' incentives to invest are preserved. This approach therefore gives effect to the purpose in s 162(a).

We have not adopted an unindexed RAB approach

- 3.339 Our final decision is to adopt RAB indexation, rather than adopting an unindexed RAB. Submitters generally supported RAB indexation.³⁶¹
- 3.340 In response to our emerging views paper, some submitters suggested using an unindexed approach.³⁶² Submitters generally viewed an unindexed RAB as a means of achieving a front-loaded capital recovery to mitigate the risk of stranding.³⁶³
- 3.341 Vector, in its submission on the draft decision, argued that an unindexed approach (see above), leads to faster capital recovery, greater transparency and certainty. Vector characterised the unindexed RAB method applied to Transpower as a "method for managing technology stranding risk." It considers this method is more consistent with the "lock in" principle of BBM.³⁶⁴
- 3.342 For context we note that we considered the use of an unindexed RAB for Transpower in 2010 as appropriate given its relatively large investment programme, and an un-indexed approach would likely lead to higher revenues in the near-term that better matched Transpower's investment needs. In the 2016 IM review we considered whether to align Transpower's approach with the indexed RAB approach used in other business under Part 4, but did not identify compelling enough reasons for a change.³⁶⁵
- 3.343 Our final decision (and the draft decision) is to index the RAB, provide flexibility with the approach to depreciation under ID regulation, and introduce an upfront

³⁶¹ Chorus "Submission on Fibre input methodologies – Draft decision (30 January 2020), paragraph 21.1; Enable and Ultrafast "Submission on Fibre input methodologies – Draft decision (30 January 2020), paragraphs 8.22; Vocus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 1.

³⁶² Enable and Ultrafast "Fibre emerging views submission" (18 July 2019), paragraph 5.6; Vector "Fibre emerging views submission" (18 July 2019), paragraphs 20 and 21.

³⁶³ Relative to an indexed RAB (and all other things equal), when setting revenue allowances based on an unindexed RAB, revenues are higher in the earlier part of an asset's life, and lower in the later part of an asset's life.

³⁶⁴ Vector "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraphs 47 and 50.

³⁶⁵ Commerce Commission "Input methodologies review decisions Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower IM review Final reasons paper" (20 December 2016) para 307-309 https://comcom.govt.nz/_data/assets/pdf_file/0022/60529/Input-methodologies-review-decisions-Consolidated-reasons-papers-20-December-2016.pdf

allowance for stranding risk. While Enable and Ultrafast did not explicitly provide support for an indexed RAB in their submission on the draft decision, they supported the draft decision's flexibility for LFCs subject to ID regulation to manage stranding risk.³⁶⁶ We discuss our final decisions on depreciation in paragraphs 3.276 to 3.309 and on stranding risk in paragraphs 3.311 to 3.313.

- 3.344 We agree with Chorus that "a balance needs to be struck between revenue smoothing to ease price shocks and the need for cost recovery in the face of any emerging competition."³⁶⁷
- 3.345 For example, it may be appropriate to:
 - 3.345.1 front-load capital recovery to mitigate potential stranding risk; or
 - 3.345.2 back-load capital recovery to manage price shocks in the context of assets built ahead of demand.
- 3.346 We consider that our final decision package for mitigating stranding risk appropriately addresses Enable and Ultrafast's and Vector's concerns. We consider that these approaches are more effective mechanisms for shaping the time profile of capital recovery than choosing an unindexed RAB approach. We do not consider that the adoption of an unindexed RAB is required as a measure to mitigate stranding risk under Part 6.
- 3.347 Our final decision to index the RAB is based on ensuring compliance with *ex-ante* FCM, an appropriate allocation of inflation risk, and leaves the issue of stranding to other regulatory mechanisms.

Rationale for choosing CPI as inflation index

- 3.348 Our final decision is to index the RAB using a CPI measure, with increases in asset value treated as income. We will use a forecast CPI for PQ regulation and the actual CPI for ID.
- 3.349 We have considered alternative inflation indices, such as market value or producer price indexing.³⁶⁸ The main reasons for using CPI for revaluations instead of another index are as follows:
 - 3.349.1 Using CPI avoids the time, cost and uncertainty of undertaking regular revaluations of a variety of assets: a task that would be required if an

³⁶⁶ Enable and Ultrafast "Submission on Fibre input methodologies – Draft decision (30 January 2020), paragraphs 9.1 to 9.7.

³⁶⁷ Chorus, Submission on the Commerce Commission's emerging views (16 July 2019), Appendix A, paragraph 36

³⁶⁸ We have not received any submissions suggesting we use an index other than CPI for revaluation.

alternative market value approach was used. Further, given the variety of methods that may be used to undertake these revaluations, the results would be open to dispute.

- 3.349.2 Both alternatives (ie, market value or producer price indexing) would lead to uncertain cash flow impacts, as the relative movement between these approaches and CPI is uncertain. The age profile of the regulated provider's asset base would affect the impact of inflation on that regulated provider and could lead to counter-intuitive cash flow profiles, resulting in lower revenues if the alternative index were to increase faster than CPI.³⁶⁹
- 3.350 Vector contends there are shortcomings in our decision to use the CPI forecast from the Reserve Bank.³⁷⁰ It claims this method has performed poorly, and has consistently overestimated actual inflation for Part 4 suppliers. Instead, Vector suggested that the Commission use market-based inflation forecasts, aligned with the updated practice of The Treasury.³⁷¹
- 3.351 We disagree with Vector's proposal. Vector does not provide evidence that conclusively demonstrates that market-based inflation forecasts are generally expected to perform better than the Reserve Bank CPI forecasts. We compare inflation forecasts in Figure 3.2 below.
- 3.352 Importantly, any change in forecast method would not only need to be generally a consistently better forecast but would also need to improve consistency between inflation expectations in the nominal WACC and the CPI forecast (see below). Vector has not presented evidence that demonstrates that a different CPI forecast would be more consistent with inflation expectations inherent in the nominal WACC. We discuss the importance of this consistency from paragraph 3.354 below.

Further considerations in managing inflation risk

- 3.353 While, as discussed above, all three approaches to managing inflation risk are consistent with *ex-ante* real FCM, under different implementation choices, the approaches have different implications for how inflation risk is managed. The choices, further discussed below, relate to:

³⁶⁹ See Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper December 2010, paragraph 4.3.80.

³⁷⁰ Vector mischaracterises the inflation forecast as based on the "Commission's method". The forecast is produced by the Reserve Bank of New Zealand: it is not a forecast that the Commission has made.

³⁷¹ Vector "Submission on Fibre input methodologies – Draft decision (30 January 2020)", paragraphs 53-54.

- 3.353.1 the issue of consistency between forecast CPI and inflation expectations inherent in WACC; and
- 3.353.2 the option to use forecast CPI for both indexing the RAB for setting the price path and when indexing the RAB under ID.

Consistency between forecast CPI and inflation expectations inherent in WACC

- 3.354 To the extent that (*ex-ante*) inflation forecasts in the CPI forecast and inflation expectations inherent in WACC are consistent, the *ex-post* risk that actual CPI is different from forecast CPI is significantly mitigated.³⁷²
- 3.355 Our final decision is to use a CPI forecast that is based on Reserve Bank forecasts and the mid-point of its inflation target.³⁷³ The regulatory nominal WACC is intended to reflect market inflation expectations. If inflation expectations inherent in WACC and forecast CPI are consistent, then regulated providers are provided with a normal return. However, if these expectations are mismatched, the impact is one of the following.
 - 3.355.1 If the inflation expectations inherent in nominal WACC are lower than forecast inflation, regulated providers may achieve a below-normal return (because forecast revaluations deducted from revenue are higher than the implicit return for inflation in the nominal WACC).
 - 3.355.2 If the inflation expectations inherent in nominal WACC are higher than forecast inflation, regulated providers may achieve an above-normal return (because forecast revaluations deducted from revenue are lower than the implicit return for inflation in the nominal WACC).
 - 3.355.3 The real WACC is not reliably measurable, and we are therefore unable to directly assess the consistency between inflation inherent in the nominal WACC and forecast CPI.³⁷⁴
- 3.356 In the draft decision reasons paper (November 2019) we compared our approach to CPI forecasts to other CPI forecasts. We noted that Figure 3.2 below visually illustrates that the Part 6 IM approach to inflation forecasting (based on Reserve Bank forecasts and targets) is in line with other CPI forecasts. At the time we concluded that given that the IM approach is consistent with other inflation

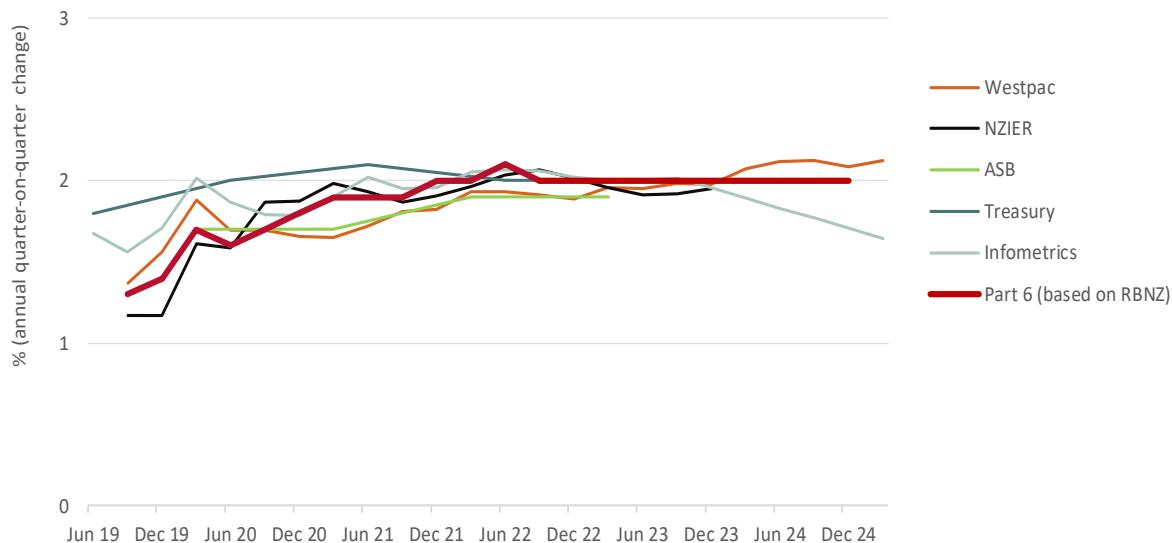
³⁷² Consistency does not require that the forecasts are both accurate; it means that the inflation expectations in the two measures are the same. To maximise the likelihood of consistency for a given CPI, to the extent practicable, the CPI forecast and the nominal WACC should be produced at similar points in time.

³⁷³ This approach is also adopted under Part 4.

³⁷⁴ Forecast CPI under our final decision is based on the Reserve Bank forecast and the mid-point of its inflation range of 1 to 3%. This approach is consistent with the Part 4 approach.

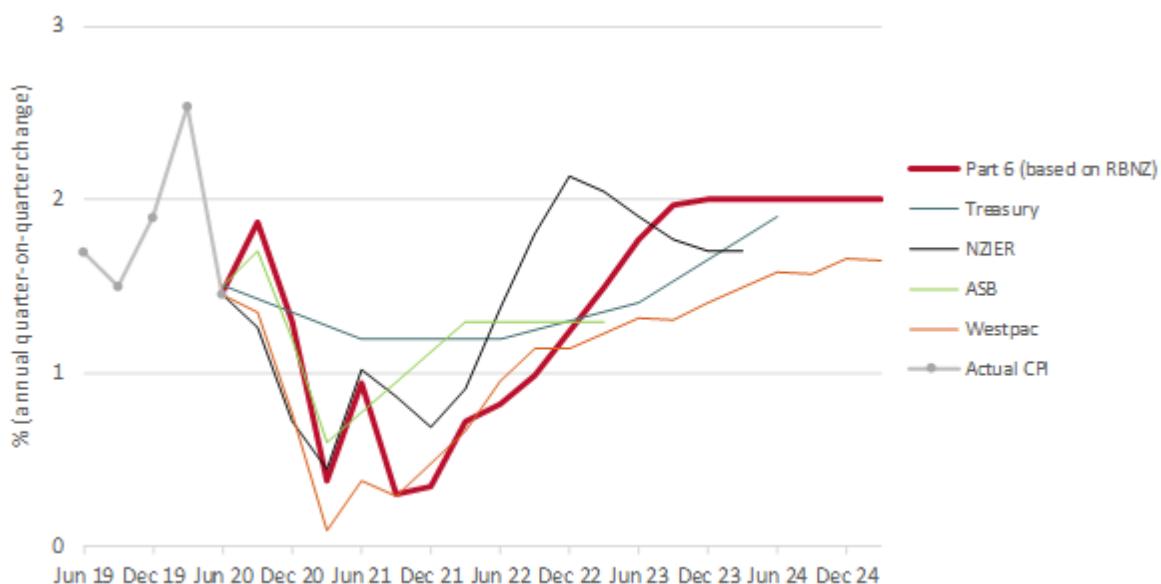
forecasts, it is reasonable to assume that our estimate of inflation is consistent with the inflation expectations inherent in the WACC.

Figure 3.2 Comparing Part 6 CPI forecast with other inflation forecasts (November 2019)



- 3.357 At the time we explained that we are not aware of any alternative approaches to CPI forecasting that are more likely to be consistent with the inflation expectations inherent in our calculation of regulatory WACC than our final decision approach. As discussed at para 3.350, Vector suggested that we adopt market-based inflation forecasts. However, Vector has not presented evidence that demonstrates that a different CPI forecast would be more consistent with inflation expectations inherent in the nominal WACC.
- 3.358 Since our draft decision, the COVID-19 pandemic has resulted in much higher levels of uncertainty than typical in the economic outlook worldwide, including for New Zealand's economic outlook. Figure 3.3 below updates the figure above with the latest available forecasts (as of September 2020) and, where available, 2019 forecast values are replaced with CPI actuals.

Figure 3.3 Comparing Part 6 CPI forecast with other inflation forecasts (November 2020)



Source: Figure prepared by the Commission based on forecasts by RBNZ, the Treasury, NZIER, ASB and Westpac available in October 2020.

- 3.359 Compared to the CPI forecasts from 2019, which were tightly spread around 2% in the longer term, the forecasts prepared in 2020 are widely spread both in the short and longer term. The Part 6 CPI forecast (based on RBNZ) is now at the upper end of the forecasts.
- 3.360 The wide range of forecasts reflects the very high level of uncertainty due to COVID-19. The impact on the economy, including on inflation, depends on a range of factors that pre-COVID-19 were relatively predictable (eg, domestic and international demand, fiscal policy), and new factors with significant uncertainty (such as the widespread availability of a COVID-19 vaccine, and the re-opening of NZ borders).
- 3.361 Our view from the draft decision is unchanged. We are not aware of any alternative approaches to CPI forecasting that are more likely to be consistent with the inflation expectations inherent in our calculation of regulatory WACC than our final decision approach. We recognise the need to monitor the appropriateness of the approach to inflation forecasting applied in regulation under Part 6.

Alternative approach: using forecast CPI for indexing the RAB

- 3.362 Another approach, raised by Vector and the Electricity Networks Association (ENA) during the Part 4 IM review, is to index the RAB using forecast inflation both when determining upfront PQ path revenue allowances for a regulatory period and when determining the annual actual RAB value under ID regulation.

3.363 This approach contrasts with our final decision to use:

- 3.363.1 forecast inflation when determining upfront PQ path revenue allowances for a regulatory period; and
- 3.363.2 actual inflation when determining the annual actual RAB value under ID regulation.

3.364 Dr Martin Lally reviewed and provided his opinion on the option of generally using forecast CPI rather than actual CPI to index the RAB:³⁷⁵

Vector (2016, paras 35-50) favours inflation adjustments using the expected inflation rate throughout the process rather than a mix of forecast and actual inflation.

This has three advantages: it removes the bankruptcy risk to businesses arising from actual inflation being less than forecast inflation, it eliminates any violations of the $NPV = 0$ principle due to regulators' errors in estimating expected inflation, and it reduces the effort that needs to be devoted to correctly estimating the expected inflation rate because errors in doing so no longer induce violations of the $NPV = 0$ principle.

The only drawback is that the RAB will evolve over time in accordance with expected inflation rather than actual inflation. Thus, the real expenditures by consumers will be affected by inflation shocks.

For example, if the regulatory cycle is one year, expected inflation over the next year is correctly estimated at 2.5% but actual inflation is 0%, the allowed revenues over the next year will be reduced by 2.5% whilst the RAB at year end will rise in compensation by 2.5%, leading to all subsequent nominal (and hence real) revenues rising by 2.5%. However, such errors apply to only a single regulatory cycle and will tend to net out over a succession of regulatory cycles. The same is true of the bankruptcy risks and violations of the $NPV = 0$ principle arising from errors in estimating the expected inflation rate. So, the advantages and disadvantages are both small, but the advantages outweigh the disadvantages. I therefore favour the proposal.

3.365 In the Part 4 IM review final decision we explained why we had chosen not to adopt forecast CPI inflation for ID. We noted that using forecast CPI inflation exposes both end-users and regulated providers to inflation risk:³⁷⁶

³⁷⁵ Dr Martin Lally "Review of Further WACC submissions" (23 November 2016), page 22
https://comcom.govt.nz/_data/assets/pdf_file/0024/60558/Dr-Lallys-expert-advice-Review-of-further-WACC-submissions-report-to-the-Commerce-Commission-23-November-2016.pdf

³⁷⁶ Commerce Commission "Input methodologies review decisions, Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower" (20 December 2016), paragraphs 283-284
https://comcom.govt.nz/_data/assets/pdf_file/0018/60534/Input-methodologies-review-decisions-Topic-paper-1-Form-of-control-and-RAB-indexation-for-EDBs-GPBs-and-Transpower-20-December-2016.pdf

283. Although we agree with the advantages and disadvantages described by Dr Lally, we have decided to maintain our existing approach because we place greater weight on protecting the real expenditures by consumers, and real FCM for suppliers, from inflation shocks.

284. Dr Lally considers that the advantages and disadvantages of choosing either approach are small – given the tendency of errors to net out over a succession of regulatory cycles. The fact that a change in approach would only ever provide a small advantage gives greater weight to our decision to maintain the existing approach.

- 3.366 Our final decision for the asset valuation IM provides for the use of actual (rather than forecast) CPI when indexing the RAB under ID regulation.

Final Decision: adjustments to the RAB following deregulation

- 3.367 Our final decision is that following a deregulation review under s 210 of the Act and a decision by the Minister to deregulate certain FFLAS (either to determine that certain FFLAS should no longer be subject to PQ regulation; or to remove certain FFLAS from regulation altogether), the asset valuation IM will provide for the following.

- 3.367.1 Assets directly attributable to the deregulated component of regulated FFLAS to be identified and the deregulated component removed from the core fibre asset RAB.
- 3.367.2 The cost allocation IM to be applied over time to identify the value of shared assets attributable to the deregulated component of regulated FFLAS and for that component to be removed from the core fibre asset RAB.³⁷⁷
- 3.367.3 A reduction in the value of the financial loss asset commensurate with the reduction in the aggregated original UFB asset value remaining in the core fibre asset RAB at the time of deregulation.

- 3.368 Section 210 of the Act allows the Commission, at any time after the implementation date, to undertake a review of how one or more FFLAS are regulated. This may lead to deregulation of services with the removal of the service(s) from PQ regulation, or from regulation altogether. This then raises the issue of whether assets supporting deregulated services are removed from the RAB, in which case deregulated FFLAS will no longer be accounted for:

³⁷⁷ Section 210 of the Act sets out that the Commission may, at any time after the implementation date, review how 1 or more fibre fixed line access services are regulated under this Part if the Commission has reasonable grounds to consider that those services (a) should no longer be regulated under this Part; or (b) should no longer be subject to price-quality regulation under this Part.

- 3.368.1 when determining maximum allowable revenues under PQ regulation; and
 - 3.368.2 in performance assessments, eg, profitability, under ID regulation.
- 3.369 In the context of deregulation, international regulatory practice has been to allow markets to operate freely and, thus, not to offer regulatory support for an *ex-ante* expectation of FCM. Adopting this practice involves removing the cost component relating to deregulated assets from the RAB. The core rationale for this approach is to address the distortion that allowing deregulated assets to remain in the RAB can create for competition in “deregulated markets”.
- 3.370 Under PQ regulation, the removal of assets from the RAB due to deregulation may affect regulated providers’ ability to recover the full costs of the remaining regulated assets from the remaining end-user base of regulated FFLAS.
- 3.371 This section explains the rationale for the processes that will apply under the asset valuation IM following deregulation, including linkages to the cost allocation IM.³⁷⁸

Changes from the draft decision to reflect the Regulations

- 3.372 Our draft decision included a “deregulation adjustment” that provided the mechanical approach to changing the value of the financial loss asset following deregulation of FFLAS. This was based on the draft regulations, which had indicated that all of Chorus’ FFLAS would be subject to PQ regulation.
- 3.373 In contrast with the draft regulations, the Regulations provide that certain types of Chorus’ FFLAS are exempt from PQ regulation. In particular, reg 6 provides that Chorus’ FFLAS provided in a geographical area where another LFC has installed a fibre network under the UFB initiative is exempt from PQ regulation (ie, Chorus’ FFLAS in these areas is subject to ID regulation only).³⁷⁹ We subsequently made changes in the IM to give effect to reg 6 of the Regulations.
- 3.374 The financial loss asset at implementation date is the same for both PQ and ID. It may vary post-implementation based on deregulation or asset sales (eg, if an asset is deregulated from PQ but not ID).³⁸⁰ For example, deregulation of an asset from PQ

³⁷⁸ The asset valuation IM does not cover the wider deregulation process and rules. Question such as whether deregulation from PQ would also result in ID deregulation will be considered when we turn our mind to implementing a deregulation framework.

³⁷⁹ Refer to the discussion on our approach implementing the Regulations in the IMs, which can be found in Chapter 2.

³⁸⁰ As the financial loss asset is based on losses incurred providing services under the UFB initiative pre-implementation, the loss asset value will be adjusted in line with adjustments to the value of pre-implementation UFB assets.

regulation to ID regulation only could lead to the total ID financial loss asset value being larger than the PQ financial loss asset value.

3.375 The changes to the deregulation adjustment allow for flexibility where the scope of regulation changes as follows:

- 3.375.1 FFLAS are no longer subject to PQ regulation, but remain subject to ID regulation; or
- 3.375.2 FFLAS are deregulated altogether (ie, they are no longer subject to either PQ or ID regulation).

Final Decision: symmetric treatment for core fibre asset RAB and financial loss asset

3.376 Our final decision is to maintain symmetric treatment and remove the cost component relating to deregulated assets from both the core fibre asset RAB and the financial loss asset.

3.377 We consider that the ability to recover revenue from the financial loss asset is closely linked to the ability to recover revenue from the core fibre asset RAB. This means that, as the size of the RAB decreases as a result of removing deregulated cost components, so too does a regulated provider's ability to recover the financial loss asset via generating revenue from the core fibre asset RAB (ie, the core fibre asset). This topic is discussed in more detail in the Asymmetric Risk section of this paper.³⁸¹

3.378 This view is consistent with outcomes in workably competitive markets, where a firm may temporarily make losses when investing in an innovative service ahead of demand. As demand builds, the firm may be able to recover those losses. However, as competitors invest and innovate, the firm's ability to recover the total amount of losses may be constrained.

3.379 In the context of PQ regulation, allowing the deregulated cost components to remain in the cost base leads to the cost being reflected in allowable revenue. This may mean that the regulated provider can shift the recovery of some of these costs from unregulated (ie, deregulated) services to regulated services.³⁸² To the extent that competition is effective in the relevant unregulated market, the ability to shift costs may increase the competitiveness of a regulated provider relative to its competitors.³⁸³ In the absence of similar opportunities to shift costs, other firms

³⁸¹ See in particular paragraphs 6.1084-6.1086.

³⁸² That is, the regulated provider may still be able to recover some of the cost of the deregulated loss asset from the regulated base, even if not all of it is recoverable, which lowers its need to recover the cost within the deregulated market.

³⁸³ If a portion of the unrecovered losses can stay with the regulated business and be factored in to regulated prices, the unregulated services may be sold at a lower price than those of competitors.

operating in the deregulated market would be at a competitive disadvantage relative to the regulated provider.

- 3.380 This potential cost shifting may result in the regulated provider having an unfair cost advantage compared to its competitors, which may distort workable competition in unregulated (ie, deregulated) markets, which would be contrary to the objective set in s 166(2)(b).
- 3.381 Deregulation may materially affect the maximum allowable revenue set under PQ regulation. We envisage that we will require an expert report to assess, among other things, whether any asset removal has been carried out in accordance with the cost allocation and asset valuation IMs. If an independent verifier were to be used as part of PQ regulation, such a report could be part of their terms of reference.

Approach to removing cost components from the RAB following deregulation

- 3.382 The process for removing cost components from the RAB following deregulation relies on:
 - 3.382.1 the regulated providers' asset information system in particular, ensuring there is an ability to identify assets directly attributable to the deregulated component of regulated FFLAS and to remove the deregulated component from the core fibre asset RAB; and
 - 3.382.2 the application of the cost allocation IM over time to identify the total value of assets not directly attributable to the deregulated component of the previously regulated FFLAS, and removal of that component from the core fibre asset RAB.
- 3.383 To the extent that a deregulated FFLAS service relates to clearly identifiable assets, such as those within a geographic area, we expect that regulated providers' asset information systems will allow identification of assets that are directly attributable to the deregulated services. This approach is supported by the minimum asset granularity requirement in the asset valuation IM discussed below.
- 3.384 To the extent that the deregulated FFLAS service involves assets that are shared — with regulated FFLAS, and potentially with other services—the application of the cost allocation IM will identify the cost component to be removed from the RAB. For the core fibre asset RAB, the cost not directly attributable to the deregulated FFLAS services will implicitly change over time —by determining the costs that are not directly attributable using regularly updated cost allocators over time.
- 3.385 In contrast, the value of the financial loss asset that will be removed from the RAB following a deregulation decision is linked to the value of the UFB assets in the RAB at the time of implementation. Our final decision is to reduce the value of the

financial loss asset in a manner that is commensurate with the percentage reduction in the aggregate original UFB asset value remaining in the core fibre asset RAB at the time of deregulation. We will estimate the reduction informed by the adjustments from removing identifiable assets and shared assets as outlined in 3.382 to 3.384. This means that regulated providers need to be able to identify over time the remaining value of the UFB assets that were in the RAB at the time of implementation.

- 3.386 The removal of a portion of the loss asset commensurate with the aggregate original UFB asset value remaining in the core fibre asset RAB at the time of deregulation was supported by 2degrees, Enable and Ultrafast and Vocus.³⁸⁴

Final Decision: definition for the current value of the initial core fibre asset base

- 3.387 The main situations where the financial loss asset value will need to be modified (other than annual RAB roll forward) are due to deregulation or changes in the value of regulated assets following their sale.
- 3.388 In order to remove the cost component relating to deregulated or sold assets from the financial loss asset, we applied the definition of “current value of initial core fibre asset” in the draft determination. This value is used to determine the total proportion of the financial loss asset to be removed following deregulation or sale of assets.

- 3.389 Chorus agreed with our decision that:

following a deregulation review and a decision to deregulate by the Minister, the asset valuation IM should provide for the removal of the deregulated assets from the RAB (including a portion of the financial loss asset).³⁸⁵

- 3.390 However, Chorus submitted that the formula in our draft decision determination contained two errors.³⁸⁶

- 3.390.1 To be consistent with the Commission’s intention of allocating the financial loss asset only to the assets that were in place (which we understand to mean assets available for use in the provision of FFLAS) at the implementation date, the numerator should only include the deregulated and/or sold assets that were in place at the

³⁸⁴ 2degrees “Submission on Fibre IMs further consultation package” (14 August 2020), page 4; Enable and Ultrafast “Submission on Fibre IMs further consultation package” (14 August 2020), paragraph 7.1(c); Vocus “Submission on Fibre IMs further consultation package” (14 August 2020), page 3.

³⁸⁵ Chorus “Submission on Fibre input methodologies – Draft decision (30 January 2020), para 115.

³⁸⁶ Chorus “Submission on Fibre input methodologies – Draft decision (30 January 2020), appendix C, page 13.

implementation date (that is assets available for use in the provision of FFLAS).

- 3.390.2 The denominator does not include the impact of changes in the allocation of the initial assets to FFLAS over time. So, while the numerator will increase with increases in the allocation of shared assets to FFLAS over time, the denominator does not, and rather, only reflects the allocation at implementation date.
- 3.391 We agree that the deregulation or sale adjustment should only relate to UFB assets that existed at implementation. Not all core fibre assets that will be available for use to serve FFLAS at the implementation date were deployed as part of the UFB initiative. For example, Chorus has assets providing FFLAS that are in areas outside its designated UFB footprint.
- 3.392 Therefore, in the final decision we have defined the term “current value of initial core fibre asset” to mean “UFB-related core fibre assets” in the definitions of both the deregulation adjustment and sale adjustment. The draft determination referred more generally to core fibre assets, which included non-UFB assets that existed at implementation. We consider this new term better gives effect to our policy intent. UFB-related core fibre assets are defined as core fibre assets that were UFB assets prior to the implementation date. The new definition better promotes certainty regarding which assets are to be included in the calculation of the deregulation adjustment and sale adjustment.
- 3.393 Chorus proposed that the financial loss asset should be pro-rated across the (allocated) RAB assets that existed at the implementation date in order to overcome the allocation issue.³⁸⁷ We do not consider that locking in the allocation to the implementation date values will appropriately pro-rate the financial loss asset. The potential recovery of the remaining financial loss asset at any point in time will be linked to the UFB-related core fibre assets that also exist at that point in time. Therefore, the calculation should reflect the current allocation of these assets.
- 3.394 In order ensure that the calculation reflects the cost allocations that apply at the time that a deregulation or sale of assets occurs, we have specified that the current value of the initial core fibre asset base is equal to the sum of all closing RAB values for all UFB-related core fibre assets for the disclosure year.

³⁸⁷ Chorus “Submission on Fibre input methodologies – Draft decision (30 January 2020), appendix C, page 13.

Other key components of the asset valuation IM

3.395 In this section we discuss our final decisions relating to:

- 3.395.1 specification of asset granularity in the RAB;³⁸⁸
- 3.395.2 treatment of intangibles;
- 3.395.3 sale and purchase of assets; and
- 3.395.4 treatment of vested assets.

Final Decision: level of asset specificity in the RAB

3.396 Our final decisions are outlined below.

- 3.396.1 To prescribe a minimum level of asset specificity that regulated providers must satisfy when recording assets in the RAB, in respect of the pre-implementation period (during which the financial loss asset is determined). The level of specificity required under GAAP and with such additional records as are necessary to satisfy the minimum level of asset specificity consistent with good telecommunications industry practice.
- 3.396.2 To prescribe a minimum level of asset specificity that regulated providers must satisfy when recording assets in the RAB post implementation. Our chosen minimum level of specificity from implementation is set out in Table 3.2 below.
- 3.396.3 To require regulated providers to capture relevant information to allow decisions on cost allocation to be made. The asset granularity requirements will be aligned across asset valuation and cost allocation IMs.
- 3.396.4 That while we have prescribed a minimum level of asset specificity, this sets a starting point and will not preclude the Commission requiring further granularity.

Table 3.2 Minimum level of asset specificity

Category	Level
Network layer	Whether a core fibre asset or collection of core fibre assets corresponds to layer 1 or layer 2

³⁸⁸ We also use the term “asset granularity” to refer to the level of detail held on assets. Note that we use the terms “asset specificity” or “asset granularity” at different times during the discussion of our reasons, and we view them as having the same meaning.

Category	Level
Asset class	To reflect GAAP depreciation categories
Geographic location	<p>Location, as recorded in the regulated provider's asset management or geographical information systems, that allows identification of the physical location or the geographic area in which the fibre asset is installed</p> <p><i>Example: the location of fibre assets, such as cables, that naturally span a large physical area, must be identifiable to a level of detail that would allow the general location of the fibre asset to be identified.</i></p>
Shared with other parties	<p>Information that is sufficient to permit an objectively justifiable and demonstrably reasonable assessment of the:</p> <p>factors influencing the use of the fibre asset by the regulated provider, another regulated provider, a Part 4 regulated supplier or non-regulated party (who shall be treated as one group for the purposes of identifying such factors); or</p> <p>the circumstances when a cost driver leads to an operating cost being incurred in respect of the use of the fibre asset by the regulated provider, the regulated provider, another regulated provider, a Part 4 regulated supplier or non-regulated party (who shall be treated as one group for the purposes of identifying such factors),</p> <p>where</p> <p>information must be kept current, such that any asset allocators, cost allocators, proxy asset allocators or proxy cost allocators that rely on it can be reviewed and, where relevant, updated at least once every 12 months; and</p> <p>any fibre asset shared with another regulated provider, Part 4 regulated supplier or any non-regulated party is a right-of-use asset, the information held for GAAP purposes on that right-of-use asset provides sufficient specificity</p>
Assets shared with services that are not regulated FFLAS	Information that is sufficient to permit an objectively justifiable and demonstrably reasonable assessment of the:

Category	Level
	<p>factors influencing the use of the core fibre asset; or</p> <p>the circumstances when a cost driver leads to an operating cost being incurred, where</p> <p>information must be kept current, such that any asset allocators, cost allocators, proxy asset allocators or proxy cost allocators that rely on it can be reviewed and, where relevant, updated at least once every 12 months</p>
Fibre assets that form part of any additional RABs	<p>Information that is sufficient to permit an objectively justifiable and demonstrably reasonable assessment of any of the following fibre assets specified by the Commission:</p> <p>fibre assets in any additional RAB;</p> <p>a subset of fibre assets relating to any additional RAB, where the Commission may from time to time specify subsets of core fibre assets for the purposes of Part 6 of the Act; or</p> <p>fibre assets that were not part of the UFB initiative.</p>

- 3.397 We consider that the level of asset specificity adopted in this final decision, constitutes a sufficient level of granularity to enable the allocation of costs to the degree necessary to support regulatory purposes. In particular, we consider it will give effect to s 162(d) by precluding the over-recovery of costs, and therefore limiting the ability of regulated providers to extract excessive profits. Imposing certain granularity requirements will mean that regulated providers will be prevented from including assets in the RAB at a highly aggregated level that may not correspond to the actual assets used in the provision of regulated FFLAS. Our approach also allows regulated providers the ability to improve efficiency via the sharing of network assets between regulated FFLAS and services that are not regulated FFLAS, consistent with s 162(b).
- 3.398 We need to consider the level of asset granularity that is necessary to support broader regulatory functions under Part 6, such as cost allocation and removal of deregulated assets. There are several reasons why we have prescribed at least a minimum level of RAB disaggregation that all regulated providers must comply with when recording assets in their RAB. These include the following.

- 3.398.1 **Legislative requirements:** we are required to apply the requirements of the Act, including the exclusion of non-UFB initiative assets from the calculation of the losses (s 177)).
 - 3.398.2 **Consistency of information allows comparison across providers:** in order for information to be comparable between different regulated providers, we will require a minimum level of consistent information on assets.
 - 3.398.3 **Future removal of assets from the RAB:** our ability to remove assets from the RAB, should this be required (eg, due to a sale of part of the asset base, or where required in the case of deregulation), will be influenced by the degree of granularity of the information recorded for assets in the RAB.
 - 3.398.4 **Cost allocation rules:** the setting of cost allocation rules may imply that a particular degree of granularity will be necessary. Correspondingly, particular asset granularity for asset valuation may need to be supported by cost allocation rules.
 - 3.398.5 **Other specific regulatory needs:** we are required to consider specific regulatory needs, such as capturing information on assets shared with other parties or determining a future cost-based price.
- 3.399 Under Part 4, the prescription of asset granularity is only implicit – it can be deduced from other asset valuation IM requirements. An example is prescribed regulatory asset lives, which require assets to be grouped into specific depreciation categories. By contrast, however, our asset valuation IM rules need to cater to additional requirements in the Part 6 legislation, which may require explicitly identifying assets according to geographies, network layer and other categories.
- 3.400 The purpose of setting asset granularity (ie having asset specificity) requirements is to ensure that relevant information is captured when assets are created. However, granularity requirements must be balanced against the costs of collecting the information. We recognise that requiring regulated providers to collect additional information may require changes to their existing systems and processes.
- 3.401 Determining the appropriate level of asset granularity requires us to make a judgement call, balancing the benefits of having a high degree of granular information available against the cost and practicality of the collection of that data. We consider our final decision, which is to set a minimum level of asset specificity for both the period prior to implementation and then for the period after implementation, best achieves this balance. For example, requiring regulated

providers to capture relevant information to allow decisions on cost allocation to be made.

- 3.402 The reason we have adopted the minimum level of granularity set out in above in Table 3.2 is that we consider it will best serve the purposes of Part 6. In particular, our chosen level of granularity (as well as regulated providers' application of judgement on required granularity), will help prevent over or under-recovery of costs, in line with the purpose of Part 6, in particular under s 162 (a) and (d). Appropriate cost recovery, based on suitable asset granularity, supports innovation and investment, as required by s 162 (a) and limits the ability for providers to extract excessive profits, required by s 162 (d). This is demonstrated below (see 3.411).
- 3.403 Asset granularity data is also used in cost allocation to allocate costs between regulated FFLAS and services that are not regulated FFLAS, encouraging improvements in efficiency (s 162(b)).

The alternatives of a wholly flexible approach or a highly prescriptive approach

- 3.404 In reaching our decision, we have considered the alternatives of either a wholly flexible, non-prescriptive approach on one hand, or a highly prescriptive approach on the other. For the reasons that follow, we have determined that neither of these approaches would best meet the purpose of Part 6.
- 3.405 If we take a completely flexible approach and set no minimum requirements for the information that regulated providers must supply, we may not have the necessary information available to facilitate the implementation of Part 6. For example, information regarding assets not deployed as part of the UFB initiative – this information is necessary to undertake the calculation of the financial losses.³⁸⁹ Without this granularity we cannot determine investments made under the UFB initiative, as required.
- 3.406 On the other hand, we consider a highly prescriptive approach to asset granularity is impractical for the following reasons:
 - 3.406.1 **The dynamic and complex nature of FFLAS and the telecommunications markets:** issues of actual or potential competition from copper, fixed wireless and hybrid fibre-coaxial networks; technology evolution such as 5G wireless, and the complexity of services make it very difficult to determine a reasonably comprehensive set of information requirements.
 - 3.406.2 **The need to keep information current:** setting requirements based on the information currently available would likely lead to the

³⁸⁹ Refer section 177(3)(a).

requirements becoming out of date within the first regulatory period, leading to a need for constant amendment.

- 3.406.3 **The need to keep costs reasonable:** to avoid increasing compliance costs for regulated providers we should not require them to modify their internal systems to produce high levels of detail without a clear view of the benefits to end-users in doing so.
- 3.406.4 **Information asymmetry:** The Commission does not have the in-depth knowledge of the regulated providers' networks to be able to undertake this task, meaning that the production of comprehensive requirements would be impractical.
- 3.407 We also recognise that if we impose prescriptive granularity requirements, these could be seen as exhaustive. In order to take account of the dynamic and evolving FFLAS markets and the information asymmetry between the Commission and regulated providers, there is a need for regulated providers to apply a degree of judgement as to the types of information that will best serve regulatory purposes. We consider that putting in place a minimum level of asset specificity will encourage regulated providers to provide additional information where relevant.
- 3.408 One example of the difficulty of determining the basis for a more prescriptive approach is geographic location data. The location of assets is likely to be useful information for the future consideration of changes to the RAB due to deregulation. We will require the collection of relevant geographic information. Some assets are installed in a discrete location, such as a cabinet or a rack of equipment, that can be specifically identified. However, assets such as a ductline or a fibre cable exist in a physical area rather than a specific location. This area is not easily defined in the fixed asset register using conventional definitions.
- 3.409 While we expect that Geographic Information Systems (**GIS**) operated by the regulated providers will assist with collecting and developing the information required, it will not be practical to reflect GIS spatial data in an asset register.
- 3.410 There will also be a risk to the regulated providers if they seek to provide data at a low level of granularity. This can be illustrated with reference to cost allocation. For example, a low level of granularity may mean there is insufficient information to allow the regulated provider to use a causal allocator in cost allocation and will necessitate the application of a proxy cost allocator. This could lead to a lower level of costs being allocated to regulated FFLAS than the level that would have been allocated if a causal allocator had been identified.
- 3.411 This can be demonstrated through the example of fibre cables that contain several fibres each and serve a mix of regulated FFLAS and copper end-users

(telecommunications services that are not regulated FFLAS) in a given geographic area. Different levels of disaggregation of assets might lead to different allocations of the shared fibre cable costs, as follows:

- 3.411.1 In a scenario with a low level of granularity, only the total dollar values of fibre splitters, lead-in fibre and copper cabinets where cables are terminated are available. A decision is therefore made to allocate costs based on a proxy driver of a 50/50 split of customers; or
- 3.411.2 In a scenario with a high degree of granularity, the RAB data allows for the determination of the total number of splitters and copper cabinets in the area fed by the fibre cables. The ratio is 75% splitters to 25% cabinets. Given each splitter or cabinet consumes a fibre, this split is determined to be causal.
- 3.412 We note that different allocations of shared costs to regulated FFLAS could distort incentives for regulated providers to innovate and invest in the services sharing the assets.
- 3.413 Chorus has consistently stated that it operates one network that includes two technologies, copper and fibre, across different areas in New Zealand. This has led to extensive sharing of assets between the two services. We expect that Chorus is unlikely to have highly granular data that will allow all instances in which assets are shared to be identified with a high degree of accuracy. This “one network” view is also likely to mean that significant cost allocation is necessary.
- 3.414 Examples of situations where the asset data may not be available to differentiate between assets used for regulated FFLAS and services that are not regulated FFLAS are likely to include:
 - 3.414.1 a power system (general mains reticulation, 50V DC power system and engine alternator back-up) which serves a network building;
 - 3.414.2 a shared transport system that aggregates traffic from multiple services; and
 - 3.414.3 assets that change use over time.
- 3.415 The replacement of services supplied via copper with those provided via FFLAS over time may be a driver for Chorus to provide appropriate levels of asset granularity. If asset data is not granular enough, it may lead to allocators that inappropriately continue to assign costs to copper on proxy drivers that misrepresent the actual requirements of the copper services. For example, FFLAS based services, which are capable of providing much higher speeds than copper-based services, tend to

require a higher proportion of bandwidth on a shared transport system than a proxy allocator, such as customer numbers, would suggest.

- 3.416 We expect that the LFCs other than Chorus will have a considerably lower level of sharing of assets. For those entities, the assets are likely to be shared mainly between Part 6 and Part 4 services.
- 3.417 Some submissions have argued that a more prescriptive approach should be taken to asset granularity. For example, Analysys Mason, on behalf of Chorus, notes that Tera is seeking that the level of granularity required is at least the same as the granularity of information in the Total Service Long Run Incremental Cost (TSLRIC) model used in the Unbundled Copper Local Loop (UCLL) Final Pricing Principle (FPP) determination, used by the Commission in determining copper pricing.³⁹⁰ As noted above in paragraph 3.406, we see a number of practical difficulties with a highly prescriptive approach, and it would come at a cost, which we consider does not match the benefits it would deliver.

Asset specificity covering both pre-and post-implementation periods

- 3.418 In our draft decision, we set out minimum levels of asset specificity covering both pre-and post-implementation periods.³⁹¹
- 3.419 We received submissions from various stakeholders, including from Chorus and the LFCs, on the requirements set out in Table 3.1 of the draft decision and Schedule A of the draft determination. Issues were raised in submissions around the level of granularity that applies to the pre-implementation period and the level that applies to the post-implementation period.

Pre-implementation period

- 3.420 Enable and Ultrafast submitted that they would be unable to meet all of the asset granularity requirements set out in our draft decision when deriving the RAB at implementation. They noted that their asset registers are established for financial reporting purposes and reflect GAAP requirements, and that it would be prohibitively expensive to retrospectively re-work certain financial information such that the required level of granularity can be provided.³⁹²

³⁹⁰ Analysys Mason “Report for Chorus: Response to TERA paper on “over-recovery” (24 January 2020), page 21.

³⁹¹ See Commerce Commission “Fibre input methodologies – Draft decision paper” (19 November 2019), paragraph 3.279.

³⁹² Enable and Ultrafast “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraphs 8.7 and 8.8.

3.421 Chorus submitted:³⁹³

...we don't agree with the proposed level of granularity, in particular, when determining the initial RAB. Asset granularity should instead align with existing data, accounts and systems unless there is good reason to depart. If changes are necessary for the collection of information in future, then the transitional principle should apply.

3.422 Chorus also submitted there is a need for a transition to the new regulatory framework, and that the Commission's evaluation:³⁹⁴

must take into account where Chorus is on its asset management journey. Chorus is transitioning into a new regulatory framework and that will necessarily require a period of development and adaptation.

3.423 Northpower submitted that the proposed information specified in Schedule A will result "in material increases in data collection, collation and assurance workload."³⁹⁵

3.424 Chorus proposed that the requirements at implementation date should align with the level of granularity of its existing data, accounts and systems. Chorus submitted that this would be consistent with the Commission's preference for simplification in the IMs.³⁹⁶

3.425 In terms of the pre-implementation period, we agree with Chorus and the LFCs that it may be impractical and costly to retrospectively re-work certain financial information where this currently does not exist. We consider that requiring regulated providers to develop this information would not be cost effective.

3.426 With this in mind, for the pre-implementation period, we have changed the determination to require regulated providers to provide information at the level of granularity required for GAAP. This requirement is aligned with the requirement under s 177(1)(b) that when calculating the initial value of a fibre asset, to adjust the cost of an asset for depreciation and impairment losses (if any) under GAAP.

3.427 While we have aligned the pre-implementation asset specificity requirement with GAAP, we expect that regulated providers have kept additional records to maintain the minimum level of additional information that is aligned with good telecommunications industry practice. The information captured under GAAP is not necessarily sufficient to efficiently manage a telecommunications network, and a supplier following good practice will capture the necessary additional information.

³⁹³ Chorus "Submission on Fibre input methodologies – Draft decision (30 January 2020), paragraph 108.

³⁹⁴ Ibid, Appendix C, page 1.

³⁹⁵ Northpower "Submission on Fibre input methodologies – Draft decision" (30 January 2020), para 7.

³⁹⁶ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 109.

We have also made changes to the post-implementation period granularity requirements, as set out below.

Post-implementation period

- 3.428 Chorus and the LFCs also raised concerns with their general ability to provide certain data at the minimum level of granularity specified in the draft decision for the post-implementation period. For example, Chorus submitted:³⁹⁷

the level of granularity in the RAB should reflect a balance between needing to understand assets and the asset lives attached to them, with a level of practicality to ensure the process is workable" (page 16 of Appendix C).

- 3.429 The submissions from Chorus and the LFCs highlight the following issues:

- 3.429.1 The definitions in Schedule A of the draft determination of the minimum levels of specificity to describe assets are too prescriptive in some cases. For example, it may not be possible to categorise cables as either "feeder" or "distribution" under asset class, or to assign a physical address to a given asset.³⁹⁸
 - 3.429.2 The requirements need to ensure that granular information is available for regulatory purposes, but do not need to be fully integrated into the RAB asset register for each individual asset.
 - 3.429.3 The need to recognise that the IM is specifying minimum requirements that can be reviewed in future and/or enhanced through ID regulation requirements.
- 3.430 Some submitters previously argued for a prescriptive approach to asset granularity. This highlighted the risk that regulated providers will have incentives to provide less granular data as a means of increasing information asymmetries.³⁹⁹
- 3.431 Spark proposed in its submission on the draft decision that we supplement our proposed approach by:⁴⁰⁰

³⁹⁷ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 35 and Appendix C page 16; Enable and Ultrafast Fibre "Cross-submission on Fibre input methodologies draft decision" (18 February 2020) paragraph 8.9; Northpower Fibre "Submission on Fibre input methodologies – Draft decision" (30 January 2020) paragraph 7.

³⁹⁸ A single cable sheath may contain some fibres that act as distribution and some as feeders. So, the cable itself does not fit into a single category.

³⁹⁹ For example, see TERA consultants - Study on potential cost over-recovery in the BBM model for fibre services - Report for Spark" (31 July 2019), page 25.

⁴⁰⁰ Spark "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 20.

Ensuring that regulatory provider data is collected or maintained at a granular level as anticipated by the draft decision (see draft decision para 3.444). On the face of it, the draft does not prescribe the data that must be used for allocations at this stage (see draft decision para 3.451) and there is a risk that the relevant data is lost (Loss of data is noted as an issue for past loss calculation, Draft decision [3.474]).

We recommend the Commission consider clarifying that regulated providers should retain relevant disaggregated underlying data that would permit a proper assessment of avoided costs should this be required (subject to recommended benchmarking below).

- 3.432 We agree with Spark that the IMs should clarify that regulated providers are expected to keep appropriate records. We also agree that the level of disaggregation of the underlying data should permit an objective assessment of the factors that influence the employment of the asset, or the circumstances under which a cost driver leads to an operating cost.
- 3.433 We considered adopting a more prescriptive approach in setting granularity, which would require our IMs to define exactly what type of information is best or reasonable in each case. We did not consider that approach practical (see draft decision at paragraph 3.451). However, we consider that requiring regulated providers to capture and maintain relevant data will reduce the risk associated with information asymmetry and allow us to better assess the allocation of assets and costs to regulated FFLAS.⁴⁰¹
- 3.434 In response to submissions we have changed the requirements to a more principles-based approach to asset specificity. The proposed requirements are:
 - 3.434.1 avoid specifying detailed categories, recognising developing such information may not be cost-effective; and
 - 3.434.2 clarify that location information is to be sourced from the appropriate business systems.⁴⁰²
- 3.435 We have also decided to remove the “special assets” category because:
 - 3.435.1 generally, relevant information is captured with the other granularity requirements;
 - 3.435.2 special asset values are generally based on cost estimates/assessments rather than representing objective,

⁴⁰¹ For example, when allocating power system assets and electricity usage costs, we would expect the power consumed by equipment is likely to be a factor leading to use for allocation. If this data was not captured and available for use, we would see this as breaching the granularity requirement.

⁴⁰² The draft decision implied that location information relies on fixed asset register categorisations.

- disaggregated data points in an asset register (ie, regulated providers do not uniquely identify services supported by assets); and
- 3.435.3 collecting data based on what they currently provide does not necessarily provide cost data on service provision across their service footprint.⁴⁰³
- 3.436 The IM specifies minimum regulatory requirements and we expect that we will require that asset information is provided on a more granular basis and in cross-sections of the “minimum granularity” categories (eg, by type within a geographical area) in the future.

Final decision: treatment of intangibles

- 3.437 Our final decision is that regulated providers:
- 3.437.1 may include in their RAB intangible items consistent with the definitions under GAAP, provided that they are identifiable non-monetary assets that are not goodwill;⁴⁰⁴
- 3.437.2 must exclude working capital and goodwill from their RAB values.
- 3.438 Intangible assets can be defined as “identifiable non-monetary assets without physical substance”.⁴⁰⁵ Examples include computer software, patents, copyrights, and franchises. Regulated providers may expend resources on acquiring or developing, maintaining or enhancing such assets, and should be able to earn a return of and on that investment where:
- 3.438.1 the assets are used to supply the regulated FFLAS;⁴⁰⁶ and
- 3.438.2 this is consistent with the Part 6 purpose.
- 3.439 GAAP (through the accounting standard NZ IAS 38) provides that an intangible asset can be recognised if, and only if, it meets the following criteria:⁴⁰⁷
- 3.439.1 it is capable of being separated or divided from the entity and sold, transferred, licensed, rented or exchanged, either individually or

⁴⁰³ In other words, data on a limited number of unbundled service instances today is not a reliable indication of representative costs of that service across the entire service area.

⁴⁰⁴ See accounting standard NZ IAS 38, paragraph 24.

⁴⁰⁵ NZ IAS 38, paragraph 8.

⁴⁰⁶ Noting that this is all FFLAS post implementation but limited to UFB FFLAS for the loss period.

⁴⁰⁷ NZ IAS 38, paragraphs 12, 21-22.

together with a related contract, asset or liability, or arises from contractual or other legal rights; and

- 3.439.2 it is probable that future economic benefits that are attributable to the asset will flow to the entity and the cost of the asset can be measured reliably.
- 3.440 NZ IAS 38 requires intangible assets to be measured initially at cost. The standard prohibits the recognition of internally generated brands, publishing titles, customer lists and items similar in substance from being recognised as intangible assets. In these cases, there is no reliable way of measuring the costs (if any) to the service provider of investing in these items.
- 3.441 We consider that the criteria set out in NZ IAS 38 are consistent with the Part 6 purpose, specifically s 162(a) and (d), because these standards apply to all markets in New Zealand including workably competitive ones. By applying these criteria, regulated providers can expect to earn normal economic returns over the lifetimes of assets which reflect actual costs (identifiable and measured reliably) of providing services to consumers in an efficient manner. The criteria set out in the standard therefore provide a useful guide for determining the value of the intangible assets that should be permitted to enter the RAB value under Part 6.
- 3.442 Table 3.3 below summarises the treatment of the different types of intangibles, with further information on reasons for their treatment in Attachment C.

Table 3.3 Summary of treatment of intangible assets

Intangible	Regulatory treatment
Easements	Consistent with GAAP
Goodwill	Exclude from RAB
Working capital and interest during construction	Exclude working capital from RAB; include interest during construction in RAB (capped at weighted average of borrowing costs)
Right-of-use assets	Generally consistent with GAAP

Final Decision: sale and purchase of assets

- 3.443 Our final decision is that transactions for the sale and purchase of assets should generally be treated in a manner consistent with GAAP. The following exceptions apply.
- 3.443.1 Where assets are purchased from another regulated provider or another entity regulated under Part 6 or Part 4, the seller's ID RAB value of the assets at the time of transfer should be added to the RAB value of the purchaser and deducted from the seller's RAB value. The

value of the financial loss asset that is transferred from seller to purchaser will be calculated by applying a factor to the financial loss asset. This factor will be equal to the percentage reduction in the aggregated original UFB asset value that remains in the core fibre asset RAB as a result the sale.

- 3.443.2 Where assets are sold to an entity not subject to regulation under Part 6 or Part 4, and following the sale, the services provided with those assets are not subject to regulation under Part 6, the seller's ID RAB is reduced by the value of those assets at the time of the sale. The value of the financial loss asset that is removed from the RAB will be calculated by applying a factor to the financial loss asset equal to the percentage reduction in the aggregated original UFB asset value that remains in the core fibre asset RAB as a result of the sale.
- 3.444 The general valuation rule for related party transactions is that the cost of a commissioned asset, or a component of a commissioned asset, acquired in a related party transaction, must be set on the basis that:
 - 3.444.1 the cost of a commissioned asset or a component of a commissioned asset acquired in the related party transaction must be given a value not greater than if that transaction had the terms of an arm's-length transaction; and
 - 3.444.2 an objective and independent measure must be used in determining the terms of an arm's-length transaction for the purpose of paragraph 3.444.1.
- 3.445 The rules we apply to the sale and purchase of assets used to provide regulated FFLAS complement GAAP rules. Our rules are targeted at avoiding outcomes that are inconsistent with those produced in workably competitive markets. It is useful to distinguish between transactions involving a fibre service provider and:
 - 3.445.1 another entity that are not regulated;
 - 3.445.2 another service provider regulated under Part 6 or Part 4; and
 - 3.445.3 an entity that is a related party.
- 3.446 Our final decision is that transactions for the sale and purchase of assets should be treated in a manner consistent with GAAP, unless this may result in outcomes inconsistent with those outlined in the Part 6 purpose in s 162. We discuss each of these types of transactions below.

- 3.447 To the extent applicable the IM provisions relating to goodwill apply (refer to Attachment C).

Transactions involving unregulated entities

- 3.448 The GAAP approach does not raise any concerns for arms' length transactions between regulated providers and an unregulated entity. Consistent with GAAP.

- 3.448.1 Where assets are purchased by a fibre service provider from an entity not regulated under Part 6 or Part 4, the assets should be included in the RAB value at cost in the year of purchase, where cost is the purchase price of the assets.
- 3.448.2 When assets are sold, the RAB value should be reduced by the carrying RAB value of those assets in the year in which the disposal occurs. The value of the financial loss asset that is removed from the RAB will be calculated by applying a factor to the financial loss asset equal to the percentage reduction in the aggregated original UFB asset value that remains in the core fibre asset RAB as a result of the sale.

- 3.449 For a regulated provider, recovery of the value of the financial loss asset is intrinsically linked to selling services based on the core fibre asset RAB. In many cases we expect that the sale of fibre services regulated under Part 6 to an unregulated entity will result in those services becoming subject to regulation under Part 6. As such, the purchaser would become a regulated entity under Part 6. We describe the treatment of the financial loss asset in cases where fibre assets are sold to a regulated entity below.
- 3.450 In situations where the services provided with the assets involved in the transaction are not subject to regulation under Part 6, the unregulated entity will use the assets acquired to generate revenues that, in a workably competitive market, will reflect the recovery of the investment required to produce those services. The purchase price can be expected to reflect the overall value of the investment, which includes any implicit value of losses to be recovered through future prices.

- 3.451 It is important that costs associated with the value transferred to the unregulated entity are not passed on to end-users of regulated telecommunication services. We have put in place a requirement to ensure this does not occur. The value of the financial loss asset that is transferred from seller to purchaser will be calculated by multiplying the financial loss asset by the percentage reduction in the aggregated original UFB asset value that remains in the core fibre asset RAB as a result of the sale.

Transactions involving another service provider regulated under Part 6 or Part 4

- 3.452 Where a regulated provider purchases an asset from another service provider regulated under Part 6 or Part 4, the RAB from which a return can be earned should not be affected by the sale price. Were this not the case, returns over the life of the asset could exceed the total cost of owning and operating the asset in the combined books of the seller and purchaser. Such an outcome would not be consistent with the objective of limiting fibre service providers' ability to extract excessive profits (s 162(d)). It could incentivise service providers to trade assets unnecessarily in order to justify higher prices.
- 3.453 In workably competitive markets, service providers are not able to increase prices simply because they have traded assets with other service providers. We consider that the treatment under GAAP is not consistent with the Part 6 purpose in this situation. In order to address this inconsistency, the seller's carrying RAB value of the asset should be added to the RAB value of the purchaser and deducted from the seller's RAB value.
- 3.454 For a regulated provider, recovery of the financial loss asset is intrinsically linked to selling services provided using the core fibre asset RAB. If a portion of the financial loss asset is not transferred as part of the sale of the core fibre assets, it becomes unrecoverable and *ex-ante* FCM is not achievable. For example, if the regulated provider sells 99% of its core fibre asset RAB, but retains 100% of the associated financial loss asset, it is not viable to generate income from 1% of the core fibre asset base in order to recover the total financial loss asset.
- 3.455 Since the overall value recognised in the combined books of seller and purchaser is limited to the pre-sale RAB value, we need to determine a rule for the treatment of the loss asset.
- 3.456 As outlined above, the financial loss asset amount that is transferred will be calculated by applying a factor to the financial loss asset equal to the percentage reduction in the aggregated original UFB asset value that remains in the core fibre asset RAB as a result of the sale.

Transactions involving a related party

- 3.457 Related party transactions occur when a regulated provider, such as a local fibre company or an electricity lines business, deals with an entity which is related to it by a common shareholding or other common control.
- 3.458 When a regulated provider acquires assets from a related party there is a risk that asset prices are inflated, leading to inefficient investment and excessive profits. An example of a situation that could arise would be an asset acquired by a parent

company that is then transferred to a related party LFC at a cost that is different to the original acquisition cost to the parent.

- 3.459 These situations could harm end-users of both FFLAS and other telecommunications services who, as a result of the related party relationship, would receive lower service quality from, or pay higher prices for the regulated service, contrary to s 162(b) and (d), and s 166(2)(b). Higher sale transaction prices will lead to the overstatement of the value of the RAB, or the operating costs of the entity.⁴⁰⁸
- 3.460 To limit the potential harm to end-users, our final decision is to adopt the general valuation rule for related party transactions that the cost of a commissioned asset, or a component of a commissioned asset, acquired in a related party transaction, must be set on the basis that:
 - 3.460.1 the cost of a commissioned asset or a component of a commissioned asset acquired in the related party transaction must be given a value not greater than if that transaction had the terms of an arm's-length transaction; and
 - 3.460.2 an objective and independent measure must be used in determining the terms of an arm's-length transaction for the purpose of paragraph 3.460.1.
- 3.461 This valuation rule is also used under Part 4 regulation.⁴⁰⁹ A range of additional related party disclosure requirements apply to businesses subject to Part 4 regulation. We intend to review the relevance of these disclosure requirements when determining ID requirements under Part 6.
- 3.462 Similar to sales to an unregulated service provider, a portion of the financial loss asset will also be transferred as part of the sale to ensure compliance with FCM.

Final Decision: treatment of vested assets

- 3.463 Our final decision is outlined below.

- 3.463.1 Regulated providers must include vested assets in the RAB value as follows:
 - 3.463.1.1 consistent with the cost-based approach to additions (ie, at the actual cost to the regulated provider); and

⁴⁰⁸ A reduction in the efficiency of the regulated service reduces competitive pressure in the telecommunications market, thereby harming end-users in general.

⁴⁰⁹ Commerce Commission “Input methodologies review – related party transactions, final decision and determinations guidance” (21 December 2017)

- 3.463.1.2 the net approach must be applied to capital contributions (ie, the asset value that enters the RAB is the cost less the capital contribution).
 - 3.463.2 The cost at which the asset enters the RAB value may not exceed the amount of consideration paid by the regulated provider in respect of that asset.
 - 3.463.3 Where assets are vested at no cost to the regulated provider, the RAB value of those assets is nil.
- 3.464 In the determination, a “vested asset” is defined as a core fibre asset received by a regulated provider without provision of consideration; or with provision of nominal consideration.
- 3.465 The reasons for treating vested assets as per the final decision are the same as those that apply for capital contributions. We consider that the net approach will:
- 3.465.1 simplify the assessment of capital contributions as an input to the capex building block under PQ regulation; and
 - 3.465.2 improve the transparency of the information needed to assess the prudence and efficiency of the capex forecast, and therefore help interested persons to assess whether the purpose of Part 6 is being met.

Editorial changes to the determination

- 3.466 We have made several changes to the final determination to improve clarity.
- 3.467 **Unallocated initial RAB value:** The unallocated initial RAB value of a core fibre asset at implementation date in clause 2.2.3(1) previously referred to being calculated in accordance with s 177(1) of the Act. This clause now refers to this value being calculated in accordance with clause 2.2.13(1). This change has been made as clause 2.2.13 specifically sets out the process for the calculation and improves certainty.
- 3.468 **Adjustment of the financial loss asset by a purchaser following a sale transaction:** Clause 2.2.6(5) sets out an adjustment to the financial loss asset following sale where the purchaser is a regulated provider or a Part 4 regulated supplier. The clause has changed to improve certainty – it was changed from:
- 3.468.1 it may adjust the value of its regulatory asset base commensurate with the adjustment made to the seller’s financial loss asset; to
 - 3.468.2 it may add to its regulatory asset base an amount equal to the value of the financial loss asset removed from the seller’s RAB.

3.469 **Revaluation:** In clauses 2.2.12 and 3.3.4 we previously stated that a revaluation must be treated as income. We have now changed this to a revaluation must be treated as revenue, which improves clarity and alignment with terminology used in other parts of the determination.

Chapter 4 Final decisions: Cost allocation IM

Table 4.1 Summary of final decisions on cost allocation IM

Issue	Final decision
For all regulated providers	
Allocation of costs between different FFLAS classes and services that are not regulated FFLAS	<ol style="list-style-type: none"> Operating costs or asset values that are directly attributable to the provision of each FFLAS class (ID FFLAS, PQ FFLAS, ID-only FFLAS, or any additional FFLAS class specified by the Commission) must be allocated to the respective FFLAS class accordingly. Any operating costs or asset values that are directly attributable to services that are not regulated FFLAS, or any other cost that is recovered in respect of a Part 4 regulated service, must not be allocated to ID FFLAS, PQ FFLAS, ID-only FFLAS or any additional FFLAS class specified by the Commission. All operating costs and asset values that are not directly attributable to the provision of ID FFLAS, PQ FFLAS, ID-only FFLAS or services that are not regulated FFLAS (ie, shared costs) must be allocated using the accounting-based allocation approach (ABAA). If the Commission specifies an additional FFLAS class, any operating costs or asset values that are not directly attributable to that additional FFLAS class must be allocated using an approach that the Commission specifies.
For all regulated providers	
Allocation of costs between different FFLAS classes and services that are not regulated FFLAS	<ol style="list-style-type: none"> The total shared asset values or operating costs that a regulated provider can allocate to PQ FFLAS and ID-only FFLAS combined, or ID FFLAS (whichever is applicable) FFLAS classes must not exceed the total asset values or total operating costs the regulated provider could not have avoided if it ceased supplying services that are not regulated FFLAS. This rule only applies to an allocation of an asset value or total operating cost that would have a material effect on the total asset values or operating costs allocated to the applicable FFLAS class. Causal allocators are to be chosen when there is a causal relationship, which means in relation to: <ul style="list-style-type: none"> operating costs, a circumstance in which a cost driver leads to an operating cost being incurred during the 12-month period terminating on the last day of the disclosure year in respect of which the cost allocation is carried out; and asset values, a circumstance in which a factor influences the employment of an asset: <ul style="list-style-type: none"> for ID regulation purposes, during the disclosure year in respect of which the asset allocation is carried out; and for PQ regulation purposes, in each regulatory year in respect of the next regulatory period of which the asset allocation is forecast to be carried out. Where a regulated provider applies a proxy allocator to allocate costs, it must explain why a causal relationship cannot be established and explain the rationale for the choice of proxy allocator. We will review regulated providers' choice of allocators and the reasoning they provide in support of the use of these allocators. If we find that any do not meet

Issue	Final decision
	our review criteria, then we may scrutinise the allocator further and may take further action.
Allocation of costs between different regulated FFLAS	<p>10. A regulated provider whose FFLAS are subject to both PQ and ID regulation must allocate costs between specific classes of regulated FFLAS (ie, FFLAS subject to PQ and ID regulation; and FFLAS subject to ID regulation only). The regulated provider must apply the ABAA methodology when allocating costs between PQ FFLAS and ID-only FFLAS.</p> <p>11. If the Commission specifies an additional FFLAS class, a regulated provider must apply the cost allocation approach that the Commission specifies for any additional FFLAS classes at that time.</p> <p>12. The Commission may specify product groups under ID regulation for which regulated providers must disclose costs. A product group is a group of regulated FFLAS that differ in configuration but bear essentially the same costs.</p>
Implementing the Regulations: rules regarding sequence of cost allocation	<p>13. For regulated providers subject to both PQ and ID regulation, operating costs or asset values that are directly attributable to PQ FFLAS, ID-only FFLAS or any additional FFLAS class specified by the Commission must be allocated to the respective FFLAS class accordingly.</p> <p>14. For any specific shared operating cost or asset values, the same allocators must be used to allocate costs to PQ FFLAS and ID-only FFLAS.</p> <p>15. The total value of operating costs or asset values allocated to PQ FFLAS, ID-only FFLAS and any additional FFLAS must not exceed the value of operating costs or asset values allocated to regulated FFLAS.</p>
Cost allocation rules applicable to avoiding double recovery across services under Part 4 and Part 6	16. Regulated providers must not double recover the costs shared across services regulated under Part 4 of the Commerce Act 1986 and Part 6 of the Act.
Other cost allocation requirements specific to PQ regulation or ID	<p>17. For ID regulation, regulated providers must update the measures and statistics used for allocator values at least once every 12 months and review the choice of allocator types at least once every 18 months.</p> <p>18. When establishing the initial regulated asset base (RAB), each regulated provider must apply the same cost allocators as those used for calculating its financial loss asset.</p> <p>19. Regulated providers must apply the cost allocation approaches used for PQ to ID when the actual expenditure is reported, unless there is a justifiable reason to use an alternative approach.</p>
Exclusion of Court or other statutorily imposed penalties from operating costs	20. Court or other statutorily imposed penalties will be explicitly excluded from operating costs that a regulated provider incurs in providing regulated FFLAS.

The purpose and structure of this chapter

4.2 This chapter sets out the final decisions on the cost allocation IM, and the reasons for those decisions. It is structured as follows:

- 4.2.1 Context for the cost allocation IM, including:
 - 4.2.1.1 the role of the cost allocation IM;
 - 4.2.1.2 how the cost allocation IM interacts with other IMs;
 - 4.2.1.3 how the cost allocation IM applies to PQ and ID;
 - 4.2.1.4 requirements under the Act; and
 - 4.2.1.5 the decision-making framework.
- 4.2.2 Final decisions on:
 - 4.2.2.1 the allocation of costs between different FFLAS classes and services that are not regulated FFLAS;
 - 4.2.2.2 the allocation of costs between different regulated FFLAS;
 - 4.2.2.3 implementing the Regulations – costs may be allocated in either a single or a two-step process;
 - 4.2.2.4 means of limiting double recovery;
 - 4.2.2.5 cost allocation rules specific to ID or PQ regulation; and
 - 4.2.2.6 the exclusion of Court or other statutorily imposed penalties from operating costs.
- 4.3 This chapter describes the IM for the allocation of costs between regulated FFLAS and any other regulated or unregulated services provided by the same regulated provider. These rules are important for ensuring each regulated provider is following a consistent approach, as different approaches to allocating shared costs will result in different regulated providers attributing different levels of costs to regulated FFLAS. This in turn may impact on the prices that regulated providers will be allowed to charge under PQ regulation.
- 4.4 When applied under ID regulation, the cost allocation IM provides the rules that suppliers must adhere to when disclosing their cost data (and other financial information that relies on cost data). These rules are important since the allocation of shared costs can have a significant effect on financial results as represented in regulatory accounts provided under an ID regime, which in turn will affect the assessment made by interested persons. Accordingly, the cost allocation methodology standardises the way the allocations of shared costs are reported, which in turn facilitates consistent assessment of performance over time and between regulated suppliers.

- 4.5 The initial RAB will include the financial loss asset. Our final decision on the initial value of the financial loss asset will be specified in a separate decision published in November 2020.
- 4.6 We intend to specify the cost allocation and asset valuation rules in a separate schedule in the IMs (Schedule B) as part of our determination accompanying the separate decisions paper.⁴¹⁰

Context for the cost allocation IM

- 4.7 Regulated providers often provide services other than regulated FFLAS, as well as providing different regulated FFLAS. The total cost of supplying two or more services in combination is often lower than if the same services are provided independently. The resulting cost reductions represent efficiency gains associated with joint supply. The benefit from these efficiency gains means regulated providers have an incentive to provide multiple services. This creates questions regarding how to allocate the shared costs.

The role of the cost allocation IM

- 4.8 This chapter describes our final decisions on the IM for the allocation of costs between regulated FFLAS and any other regulated or unregulated services (referred to in this paper as “services that are not regulated FFLAS”) provided by the same regulated provider.⁴¹¹ It explains how the cost allocation IM allocates common costs as required by s 176(1)(a)(iii), while best giving effect to the matters set out in s 166(2) of the Act.
- 4.9 The regulated providers offer a range of services. For example, in addition to supplying regulated FFLAS, Chorus provides copper services that are regulated under Part 2 of the Act, and unregulated services. Regulated providers will often use shared or common assets (such as poles, ducts, and central office (exchange) buildings) and shared processes to deliver these services. This gives rise to the sharing of operating costs (eg, expenses related to head office functions) and capital costs, through the sharing of assets.

⁴¹⁰ The asset valuation IM includes specific rules applicable to the financial loss asset, including rules for depreciation and in the case of deregulation. As in many other instances, the asset valuation and cost allocation rules are designed to work together when applied. Refer to the asset valuation chapter at paragraphs 3.61-3.62 for detail.

⁴¹¹ Please see definition of “services that are not regulated FFLAS” in the glossary of terms, Attachment A. Services that are not regulated FFLAS can include other telecommunications services, such as digital subscriber line (DSL) based broadband services, as well as non-telecommunications services like electricity distribution or general property rental. Some services that are not regulated FFLAS are regulated under other parts of the Act, or other legislation such as Part 4 of the Commerce Act.

- 4.10 The cost allocation IM covers the allocation of shared asset values (which drive capital costs) and shared operating costs, as well as directly attributable costs. We use the term “shared costs” and “common costs” interchangeably to refer to costs that are common to two or more services. Directly attributable costs are costs that are incurred solely in the provision of one individual service (ie, service specific costs).
- 4.11 The main function of the cost allocation IM is to determine the rules and methodologies that regulated providers must use in order to identify the portion of asset values and operating expenses that are associated with regulated FFLAS. This will help achieve the purpose of Part 6, as discussed later in this chapter. As explained below, in the presence of shared costs, the total cost of supplying two or more services together is lower than if the same services are provided individually. The resulting cost reductions represent efficiency gains ('economies of scope') associated with the joint supply of services. To the extent that regulated providers benefit from these efficiency gains (eg, through higher profitability over the short to medium term), they have an incentive to provide multiple services.
- 4.12 The cost allocation IM helps ensure that the efficiencies realised by regulated providers through common costs are appropriately shared with end-users of regulated FFLAS. For example, in the absence of such rules, a regulated provider may allocate a high proportion of shared costs to regulated FFLAS, with the result that end-users of regulated FFLAS are excluded from the benefits of economies of scope. In this way, the cost allocation IM promotes s 162(c) of the Act.

How the cost allocation IM interacts with other IMs

- 4.13 Cost allocation is important for both PQ and ID regulation and interacts with the asset valuation IM and the Chorus capex IM in determining the allocated RAB of each regulated provider.
- 4.14 The asset valuation IM sets out the rules regarding the determination of the initial value of each regulated provider's fibre assets, which includes the financial loss asset.⁴¹² The cost allocation IM sets the rules for how each regulated provider's shared assets and costs at implementation date are to be allocated to the

⁴¹² The financial loss asset will be addressed in a separate paper to be published in November 2020. The financial loss asset, which will be determined by applying the rules in the asset valuation IM and the cost allocation IM, will be directly attributed to the RAB. However, as noted in the asset valuation chapter, the value of a regulated provider's financial loss asset may be reduced should an asset be removed from the main RAB due to deregulation. It will also be depreciated after implementation date.

appropriate FFLAS classes and to services that are not regulated FFLAS.⁴¹³ This produces the allocated RAB that applies on implementation date.⁴¹⁴

- 4.15 The unallocated RAB is rolled forward over time to reflect movements in the RAB – see 3.9, 3.169 - 3.177 and Figure 3.1 of the asset valuation chapter. Capital additions (ie, expenditure on new assets) added to the unallocated RAB annually through the roll forward process will be subject to the rules set out in the Chorus capex IM and the cost allocation IM.

How the cost allocation IM applies to PQ and ID regulation

- 4.16 Section 175 of the Act provides that a relevant IM must be applied by each regulated provider in accordance with the relevant s 170 determination. Section 170 determinations specify how PQ and/or ID regulation apply to regulated providers.
- 4.17 The focus of PQ regulation is to set a forward-looking PQ path, using forecast information. By contrast, ID regulation will generally use historical information of a regulated provider's actual performance.
- 4.18 In setting the revenue allowance for a PQ path, we will ultimately choose the allocators used to allocate costs to the relevant classes of regulated FFLAS (ie, PQ FFLAS, ID-only FFLAS and any additional FFLAS class), and services that are not regulated FFLAS.⁴¹⁵
- 4.19 ID regulation will set out how regulated providers must collect, record and use information to calculate values (such as for the initial unallocated RAB and subsequent rolled forward RAB values). This information will help us to assess whether the requirements in the cost allocation IM are being properly applied.
- 4.20 We can also provide incentives for regulated providers to meet the objectives of the Act by requiring them to publish their information under ID regulation.

⁴¹³ The FFLAS classes relevant for regulated providers subject to both PQ regulation and ID regulation are PQ FFLAS and ID-only, and any additional FFLAS class that the Commission may specify. The FFLAS classes relevant for regulated providers subject to ID regulation only are ID-FFLAS and any additional FFLAS class that the Commission may specify.

⁴¹⁴ In the asset valuation chapter, we distinguish between the “unallocated RAB” and the “allocated RAB”. The unallocated RAB value is the total value of assets employed in the provision of regulated FFLAS, including the value of assets that are shared. The allocated RAB is the value of assets employed in the provision of regulated FFLAS after applying the cost allocation IM. Similar to the unallocated RAB, it includes all assets directly attributable to regulated FFLAS, but for shared assets, it only includes the value that is directly attributable to regulated FFLAS- refer to paragraph 3.8 of the asset valuation chapter.

⁴¹⁵ The FFLAS classes are listed in paragraph 2.76.

- 4.21 Some parts of the cost allocation IM will apply to either PQ or ID regulation, rather than both. For example, the forward-looking nature of PQ regulation may give rise to situations where an IM is only relevant to PQ regulation and not to ID. Our views on when this may occur are presented later in this chapter.
- 4.22 As set out in the asset valuation chapter, s 177 sets out the rules for calculating the initial fibre asset, which includes the financial loss asset. These rules will be applied under ID.⁴¹⁶ The financial loss asset forms part of the initial unallocated RAB. Although the initial value of the unallocated RAB will impact the building blocks used under PQ regulation, the calculation of the financial loss asset (as of the implementation date) is a one-off and backward-looking calculation.⁴¹⁷

Requirements under the Act

- 4.23 Section 176(1)(a) of the Act requires us to develop methodologies for evaluating or determining several matters in respect of the supply of regulated FFLAS. These include the “allocation of common costs (for example, between activities, businesses, access seekers, regulated services, or geographic areas).”⁴¹⁸
- 4.24 The Act further provides for regulations to be made that will require regulated providers to provide an unbundled fibre service (ie, a layer 1 service) to enable competition to emerge for the provision of layer 2 services.⁴¹⁹ This is relevant to cost allocation to the extent that the unbundled fibre service is provided using shared assets and operational processes.

Decision-making framework

The promotion of the purpose of IMs: s 174

- 4.25 An IM for cost allocation is intended to promote certainty for regulated providers, access seekers, and end-users in relation to the way that costs are allocated for ID purposes and for PQ regulation, in accordance with s 174 of the Act.

Matters to be considered under s 166

- 4.26 The cost allocation IM must best give, or be likely to best give, effect:

⁴¹⁶ Information disclosure is governed by subpart 4 of Part 6, and its purpose is to ensure that sufficient information is readily available to interested persons to assess whether the purpose of [Part 6] is being met.

⁴¹⁷ This is to be addressed in the forthcoming paper on the Financial Loss Asset to be published in November 2020.

⁴¹⁸ Section 176(1)(a)(iii).

⁴¹⁹ Section 229 of the Act provides for regulations to be made declaring a point-to-multi-point layer 1 service supplied to end-users’ premises or buildings to be an unbundled fibre service.

- 4.26.1 to the purpose in s 162 of the Act;⁴²⁰ and
- 4.26.2 to the extent we consider it relevant, to the promotion of workable competition in telecommunication markets for the long-term benefit of end-users of telecommunications services.⁴²¹

The promotion of the purpose of Part 6 in s 162: s 166(2)(a)

- 4.27 We consider our final decisions on the cost allocation IM are likely to best give effect to the purpose in s 162. Of particular relevance to cost allocation are the outcomes set out in ss 162(c) and (d) of the Act:
 - 4.27.1 **Section 162(c):** Allowing end-users in markets for FFLAS to share the benefits of efficiency gains in the supply of FFLAS, including through lower prices. The use of shared assets to deliver multiple regulated FFLAS as well as services that are not regulated FFLAS gives rise to efficiencies in the form of economies of scope. By allocating a proportion of shared costs to services that are not regulated FFLAS, the cost associated with the supply of regulated FFLAS will be lower, and end-users of regulated FFLAS will share the benefits.
 - 4.27.2 **Section 162(d):** Limiting regulated providers in their ability to extract excessive profits. Allocating shared costs between regulated FFLAS and services that are not regulated FFLAS in a consistent way for the initial unallocated RAB, as well as for forecast expenses under PQ regulation, will minimise the risk that regulated providers could over-recover shared costs through both the maximum revenue allowance and other revenue streams. This approach limits the ability of regulated providers to extract excessive profits in accordance with s 162(d).

The promotion of workable competition in telecommunications markets: s 166(2)(b)

- 4.28 The promotion of workable competition in telecommunications markets is also a relevant consideration for cost allocation. In giving effect to s 166(2)(b) through our final decisions on the cost allocation IM, we have applied the high-level “competition screening” considerations which we discuss at paragraphs 2.380 above. We have considered the potential impact of cost allocation rules on competition in telecommunications markets, including the markets in which regulated FFLAS and other services are supplied.
- 4.29 The way in which shared costs are allocated between regulated FFLAS and other services can affect the ability of regulated providers to compete. For example, if a

⁴²⁰ Section 166(2)(a) of the Act.

⁴²¹ Section 166(2)(b) of the Act.

regulated provider's total economic common costs were all to be allocated to regulated FFLAS:

- 4.29.1 other services supplied using the common assets would only need to recover their incremental cost. This would allow the regulated provider to set prices for those other services at a level that could frustrate competition in the long run,⁴²² and
 - 4.29.2 the competitive position of regulated FFLAS would be worsened, as regulated FFLAS would bear the entire stand-alone cost, with the result that end-users of regulated FFLAS would pay higher prices.
- 4.30 We consider the promotion of workable competition will also be relevant for cost allocation between different regulated FFLAS. Several regulated FFLAS supplied by regulated providers can be used as inputs into telecommunications services that compete with FFLAS-based services at the downstream (retail) level. For example:⁴²³
- 4.30.1 DFAS can be used as an input in the provision of downstream services (such as wireless broadband services) that compete with FFLAS-based downstream services; and
 - 4.30.2 a layer 1 FFLAS (such as an unbundled GPON service) can be used as an input into a layer 2 service, which will potentially be in competition with the layer 2 service provided by regulated providers.⁴²⁴
- 4.31 The allocation of shared costs between different regulated FFLAS will be relevant when assessing the structure of regulated FFLAS prices and whether the allocation promotes efficient outcomes for the long-term benefit of end-users. In particular, the way in which shared costs are allocated between different regulated FFLAS could distort competition in the supply of downstream services. A higher proportion of shared costs allocated to the upstream input (DFAS or the layer 1 service), may make it more difficult for the downstream service relying on that input to compete. As discussed below, in developing our approach to cost allocation, we have had regard to the promotion of competition in different telecommunications markets, as well as

⁴²² This is discussed further from paragraph 4.175 below in the context of cost allocation between different types of regulated FFLAS.

⁴²³ We discuss these two examples further below under 'Allocation of costs between different types of regulated FFLAS'.

⁴²⁴ When copper prices were determined for the unbundled bitstream access (UBA) service, the Commission was required to consider the relativity between the UBA service and the unbundled copper local loop (UCLL) service. As the Commission noted in the UBA FPP determination, the relativity of UCLL and UBA pricing influenced the incentives for efficient unbundling decisions by access seekers. See Commerce Commission "Final pricing review determination for Chorus' unbundled bitstream access service [2015] NZCC 38" (15 December 2015), paragraphs 551 to 555.

other regulatory constraints and obligations that the regulated suppliers will face during the first regulatory period.

Relevant economic principles

- 4.32 Of the key economic principles outlined in Chapter 2 we took into account in reaching our final decisions in the cost allocation IM, the FCM principle was most relevant. The FCM principle is relevant because the application of cost allocation may impact the level of reported costs, and consequently the profitability, of regulated FFLAS over time. For example, if the cost allocation resulted in too few costs being assigned to regulated FFLAS, this in turn could affect investors' ability to maintain the financial capital employed in the supply of regulated FFLAS over time.

How cost allocation fits into the wider context of setting IMs relating to the supply of regulated FFLAS

- 4.33 The cost allocation IM has close interdependencies with the asset valuation IM, the Chorus capex IM, and PQ and ID regulation. As such, in our analysis we have considered the impact of cost allocation decisions on those areas to ensure alignment across the regulatory regime.
- 4.34 For example, we have ensured that the approach to asset granularity in the cost allocation IM is aligned with the requirements of the asset valuation IM. The asset valuation IM contains some of the rules for determining the treatment of the financial loss asset, the initial unallocated RAB, and the subsequent rolled forward RAB values. The cost allocation IM will be applied to unallocated asset values to determine the regulated asset values. Having alignment between the different IMs ensures the proper operation of the BBM in ID regulation. We have also considered the specific requirements of PQ regulation, and included specific rules in our final decision, for example rules for forecasting demand relating to shared costs.
- 4.35 We have also considered the differences between the regulated providers' businesses, and the implications of the transition from copper to regulated FFLAS. In particular, we are mindful that Chorus is a larger organisation that provides a diverse range of telecommunications services that often rely on shared assets and operational processes. As such, Chorus' business operation involves a greater level of sharing of assets and operational expenses than the other regulated providers'. We also considered that for Chorus, the transition from copper to regulated FFLAS will involve significant changes in the level of sharing of assets between different services over time. Over time, this transition is likely to see an increase in the value of shared assets in the allocated RAB as the cost allocation rules assign an increasing proportion of these shared assets to regulated FFLAS.
- 4.36 When assessing the costs of a service or a group of services, the presence of shared costs raises the issue of how such costs should be allocated between services. When

costs are assessed at a more granular or service-specific level, the level of directly attributable costs may be very small, and the level of shared costs will be greater. It is therefore important to consider the appropriate level of granularity at which to allocate costs. In the current context of provision of regulated FFLAS, cost allocation is important for several reasons including:

- 4.36.1 The allocation of shared costs between regulated FFLAS and services that are not regulated FFLAS is relevant to the determination of the costs to be recovered through the maximum revenues earned by regulated providers subject to PQ regulation. This includes the determination of the following:
 - 4.36.1.1 the assets to be included in the initial allocated RAB;
 - 4.36.1.2 the calculation of the value of the financial loss asset to be included in the initial unallocated and allocated RAB;⁴²⁵ and
 - 4.36.1.3 the allocation of shared costs during the period following the implementation date, including for the purposes of approving capex forecasts under the Chorus capex IM.
- 4.36.2 providing transparency under ID regarding how the efficiency gains from providing multiple services are shared with the end-users of regulated FFLAS over time.

Directly attributable costs, “common” costs and cost allocation

- 4.37 As noted earlier, telecommunications networks such as those deployed by the regulated providers often include assets and processes that are used to supply several different services (some of which may be regulated under Part 6, while others are not). As we noted earlier, we make a distinction between those costs that are solely incurred in relation to the supply of a service (referred to as service-specific or “directly attributable” costs) and those that are incurred in relation to the supply of two or more services (“shared” or “common” costs).
- 4.38 For example, in the case of a duct housing a fibre cable (used to supply regulated FFLAS) and a copper cable (used to supply digital subscriber line (DSL) services):
 - 4.38.1 the cost of the duct (including the cost of the trench) represents a shared cost of supplying regulated FFLAS and DSL services. The cost of the duct will need to be recovered from those services that are supplied using the duct;

⁴²⁵ Our final decision on the initial value of the financial loss asset will be specified in a separate decision published in November 2020.

- 4.38.2 in addition, there will be service-specific costs, such as the cost of the fibre cable itself (and the cost of pulling or blowing the fibre cable through the duct). These costs will be directly attributable to the regulated FFLAS.
- 4.39 In a workably competitive market, a firm employing an asset (such as a duct) to supply one service (DSL) may use that asset to supply a second service (regulated FFLAS) if it is able to recover at least the directly attributable costs of the second service through revenues from the sale of that service. However, if the regulated provider were to set prices to recover only the cost directly attributable to each individual service, it would fail to recover its shared costs (in this case, the cost of the duct). A firm in a workably competitive market will therefore expect each service using the shared asset to contribute towards the recovery of the costs of the shared asset in the long term.
- 4.40 In order to give effect to the s 162 purpose, therefore, we would expect the rules set in the cost allocation IM to achieve an outcome consistent with that in a workably competitive market as described above.
- 4.41 When assessing the costs of a service or a group of services, the presence of shared costs raises the issue of how such costs should be allocated between services. When costs are assessed at a more granular or service-specific level, the level of directly attributable costs may be very small, and the level of shared costs will be greater.⁴²⁶ It is therefore important to consider the appropriate level of granularity at which to allocate costs.

Cost allocation methodologies

- 4.42 Shared costs can be allocated between services using different methodologies. Given the prevalence of shared costs in a telecommunications network, the allocation of shared costs can be a significant regulatory challenge, with different methodologies leading to significantly different costs being associated with a given service or group of services. In reaching our final decisions, we considered the following cost allocation methodologies.
- 4.42.1 **Accounting-based allocation approach (ABAA):** under ABAA, each service would bear the directly attributable cost of supplying that service, plus a contribution to the costs of the shared asset or process. The contribution would be based on identifiable causal-based cost

⁴²⁶ For example, consider a core fibre asset that is located in a central office and used to provide multiple different types of regulated FFLAS. Hence at the less granular whole of regulated FFLAS level it may be viewed as directly attributable, but when costs are viewed at a service specific level it becomes a shared cost.

drivers (“cost allocators”) or proxy cost allocators where causal allocators are not available.

- 4.42.2 **Optional variation to accounting-based allocation approach (OVABAA):** under OVABAA, a regulated provider could choose to allocate a larger proportion of shared costs to the regulated service than it would under ABAA. This could apply in circumstances where the regulated provider was looking to introduce an innovative new service that might not be commercially viable if it had to make an ABAA-based contribution to any costs that it would be sharing with regulated services. OVABAA was introduced in Part 4 to satisfy the statutory requirement of s 52T(3) of the Commerce Act (namely, the requirement that any cost allocation IMs must not unduly deter investment by a supplier of regulated goods or services in the provision of other goods or services). There is no corresponding requirement in Part 6.
- 4.42.3 **Avoidable Cost Allocation Methodology (ACAM):** the allocation of the shared costs would be based on an assessment of the proportion of the shared costs that would not be avoidable if the firm were to no longer supply the unregulated service. That proportion would be allocated to the regulated service. The new or unregulated service could be supplied at its incremental cost.

- 4.43 For the following reasons we have concluded that ABAA is the appropriate cost allocation methodology to require regulated providers to apply.

Level of prescription of cost allocation rules

- 4.44 For each aspect of cost allocation, we have considered how prescriptive the IM should be in order to achieve the purposes of the Act. Our approach to determining the level of prescription for each cost allocation rule is based on what best gives effect to the outcomes in s 162(a) to (d) and, where relevant, the promotion of competition as required by s 166(2)(b).
- 4.45 When determining the appropriate level of prescription, we have considered several factors including:
- 4.45.1 the objectives in s 166(2) described above;
 - 4.45.2 the specific market context, including the level of asset and cost sharing in the regulated FFLAS market;
 - 4.45.3 ensuring that regulated providers are afforded sufficient flexibility to enable them to adapt to dynamic changes. This leads to innovation and

- efficiency gains, the benefits of which can be shared with end-users, which promotes s 162(c);
- 4.45.4 the need to promote certainty about the regulation as required by s 174, and to allow regulated providers to estimate the material effects of the IMs to the extent reasonably practicable as required by s 176(2)(a);
 - 4.45.5 the degree of certainty in market outcomes;
 - 4.45.6 dynamic changes to the sector including customer uptake of regulated FFLAS; and
 - 4.45.7 the potential for technology changes as well as the potential impact from future competition on regulated FFLAS.
- 4.46 We have received a range of views in submissions on the question of how prescriptive we should be in our approach to cost allocation. Those LFCs that submitted on this issue were in favour of a less prescriptive approach to cost allocation.⁴²⁷ The access seekers argued for a more prescriptive approach.⁴²⁸
- 4.47 In reaching our final decisions on cost allocation, we have considered the issue of potential information asymmetry between the Commission and regulated providers. Axiom, on behalf of Spark, has previously commented on the issue of information asymmetry, submitting that the IM should include some constraints on which allocators the regulated provider may use to avoid the regulated provider simply choosing those allocators most favourable to them. Axiom also raised the possibility of requiring the regulated providers to explain their choice of allocators to address information asymmetry.⁴²⁹ In its submission on our draft decision, 2degrees said that:⁴³⁰

⁴²⁷ Enable and Ultrafast Fibre "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraphs 7.1 and 7.7; Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 180.

⁴²⁸ See for example Nova "Submission on Fibre input methodologies – Draft decision" (30 January 2020), Appendix A, paragraph 16(c); Vocus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 24; 2degrees "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 5.

⁴²⁹ Axiom Economics "Fibre regulation emerging views - A report for Spark" (July 2019), pages 8-9.

⁴³⁰ 2degrees "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 9.

While we do not support the adoption of a non-prescriptive approach to cost allocation, we support the proposal “that the regulated providers must provide explanations for the choice of proxy allocators for allocations between regulated FFLAS and other services that are not regulated FFLAS”. This requirement should be fleshed out to require Chorus to undertake sensitivity analysis on the impact of different proxy allocators. The Commission will need this type of information in order to “review regulated providers’ choice of allocators” and “the level of cost allocated to regulated FFLAS relative to that which would have been allocated using other allocators”.

- 4.48 Chorus submitted that while there may be issues around information asymmetry, there was also a need to consider protection of regulated providers’ commercial confidentiality.⁴³¹
- 4.49 We agree that there should be some constraints on the choice of allocators. Our draft decisions included several constraints, and we have retained these in our final decisions. For example, we require regulated providers to provide explanations for the choice of proxy allocators for allocations between PQ FFLAS (when appropriate), ID-only FFLAS and other services that are not regulated FFLAS. Another example is that the choice of allocators must meet the requirements for causality, which includes consistency with similar circumstance both within a disclosure year and from year to year.
- 4.50 We consider the PQ process is a useful tool for addressing information asymmetry. It will provide us with an opportunity to gather and review additional information that is relevant to making PQ decisions that will help achieve the purpose of Part 6. The PQ process will also provide opportunities for us to request further information, which may include the impact of using alternative allocators.
- 4.51 We also anticipate that the ID reporting requirements will improve transparency on a range of issues where information asymmetry may occur. This will be considered later during our consultation on the ID requirements.
- 4.52 We also consider that developing an overly prescriptive approach to the cost allocation IMs at the outset increases the risk of embedding a sub-optimal IM into the regime. By taking a less prescriptive approach to cost allocation and placing fewer restrictions on future options there will be greater potential for the regime to adapt to future changes in market circumstances and increased access to information. Both can be factored into our future decision-making process under PQ and ID regulation and that of regulated providers.
- 4.53 In our view, a less prescriptive approach does not undermine the purpose of IMs to promote certainty set out in s 174 of the Act. Rather, we consider that by enabling future changes to be accounted for, it affords regulated providers a greater degree

⁴³¹ Submission in response to the Commerce Commission’s fibre regulation emerging views dated 21 May 2019 (16 July 2019), para 86.

of certainty. A degree of flexibility means that regulated providers can proceed with innovation and investment with confidence that the cost allocation approach will reflect the underlying causality of the future innovation and investment.

- 4.54 We note Chorus' submission about the need to consider confidentiality. We anticipate addressing confidentiality in our later work on PQ and ID regulation.

Final decisions: allocation of costs between different FFLAS classes and services that are not regulated FFLAS

- 4.55 For the purposes of our IM determination and within this paper, we categorise regulated FFLAS into FFLAS classes. As noted in the regulatory framework chapter, in the IM determination, regulated FFLAS is defined as "any and all FFLAS classes as the case may be and as the context requires". The FFLAS classes are listed in paragraph 2.76.
- 4.56 Our decisions on the allocation of costs between different FFLAS classes and services that are not regulated FFLAS are set out below.

Regulated providers subject to both ID regulation and PQ regulation

- 4.57 Operating costs or asset values that are directly attributable to the provision of PQ FFLAS, ID-only FFLAS or any additional FFLAS class specified by the Commission must be allocated to the respective FFLAS class accordingly.
- 4.58 Any operating costs or asset values that are directly attributable to services that are not regulated FFLAS, or any other cost that is recovered in respect of a Part 4 regulated service, must not be allocated to PQ FFLAS, ID-only FFLAS or any additional FFLAS class specified by the Commission.
- 4.59 Any operating costs and asset values that are not directly attributable to the provision of PQ FFLAS, ID-only FFLAS or services that are not regulated FFLAS (ie, shared costs) must be allocated using ABAA.

Regulated providers subject only to ID regulation

- 4.60 Operating costs or asset values that are directly attributable to the provision of ID FFLAS or any additional FFLAS class specified by the Commission must be allocated to the respective FFLAS class accordingly.
- 4.61 Any operating costs or asset values that are directly attributable to services that are not regulated FFLAS, or any other cost that is recovered in respect of a Part 4 regulated service, must not be allocated to ID FFLAS or any additional FFLAS class specified by the Commission.

- 4.62 All operating costs and asset values that are not directly attributable to the provision of ID FFLAS or services that are not regulated FFLAS (ie, shared costs) must be allocated using ABAA.

Rules that apply to all regulated providers

- 4.63 The total shared asset value or operating costs that a regulated provider can allocate to PQ FFLAS and ID-only FFLAS combined, or ID FFLAS (whichever is applicable) must not exceed the total asset values or total operating costs the regulated provider could not have avoided if it ceased supplying services that are not regulated FFLAS. This rule only applies to an allocation of an asset value or operating cost that would have a material effect on the total asset values or total operating costs allocated to the applicable FFLAS class.
- 4.64 Regulated providers shall choose and justify the causal cost allocators, and suitable proxy cost allocators if a causal relationship cannot be established and therefore causal allocators are not available.
- 4.65 Causal allocators are to be chosen when there is a causal relationship, which means in relation to:
- 4.65.1 operating costs, a circumstance in which a cost driver leads to an operating cost being incurred during the 12-month period terminating on the last day of the disclosure year in respect of which the cost allocation is carried out; and
 - 4.65.2 asset values, a circumstance in which a factor influences the employment of an asset:
 - 4.65.2.1 for ID regulation, during the disclosure year in respect of which the asset allocation is carried out; and
 - 4.65.2.2 for PQ regulation, in the forecast year.
- 4.66 Where regulated providers use a proxy allocator to allocate costs, they must explain why a causal relationship cannot be established and explain the rationale for the choice of proxy allocator.
- 4.67 Regulated providers must apply the cost allocation IM to determine the operating costs in the categories that will be required under ID regulation.
- 4.68 For the avoidance of doubt, the ACAM and the OVABAA methodologies will not be available to the regulated providers under the IM for allocations between regulated FFLAS and services that are not regulated FFLAS.

- 4.69 For both PQ path setting and ID compliance review purposes, we will review regulated providers' choice of allocators and the reasoning they provide in support of the use of these allocators. If we find that any do not meet the IM's criteria for selecting an allocator, then we may scrutinise the allocator further and may take further action. For example, we may note the impact of alternative allocators in our summary and analysis reports or use alternative allocators for our expenditure forecast under PQ decisions. In undertaking our reviews, we will assess compliance with the criteria for choosing an allocator which include consistency, objectivity, and how material the choice of the allocator is to the value of costs attributed to regulated FFLAS. Were a regulated provider to change an allocator without a justifiable reason and hence fail to meet the requirement under the IM for consistent use of allocators, we could take enforcement action through our powers under Part 6.

Rationale for final decisions

- 4.70 This section discusses how shared costs should be allocated between FFLAS classes and services that are not regulated FFLAS, and the reasons for these decisions. Services that are not regulated FFLAS can include other telecommunications services, such as DSL-based broadband services, as well as non-telecommunications services, like electricity distribution or general property rental. An example of where costs are shared between different FFLAS classes and services that are not regulated FFLAS is where both services share access to the same poles.
- 4.71 This section applies to cost allocation for the ongoing annual disclosures under ID regulation and for specifying a price-quality path as part of PQ regulation. It also applies to establishing the initial allocated RAB comprising all pre-implementation date assets — including UFB initiative assets (which include assets that pre-date the UFB initiative that have been used in the delivery of the UFB initiative – referred to as “pre-2011 assets”), as well as non-UFB initiative assets post-2011. It does not apply to treatment of the financial loss asset, which will be discussed in the separate paper on this issue to be published in November 2020.

Our final decision is to use ABAA for the allocation of shared costs between FFLAS classes and services that are not regulated FFLAS

- 4.72 Our final decision is to use ABAA for the allocation of shared costs between FFLAS classes and services that are not regulated FFLAS. We have also introduced a cap on the shared costs allocated to PQ FFLAS, ID-only FFLAS, or ID FFLAS (whichever is applicable), based on the costs that a regulated provider could not have avoided incurring if it ceased supplying services that are not regulated FFLAS.
- 4.73 We consider that our final decisions on the rules for allocating costs between FFLAS classes and services that are not regulated FFLAS will promote outcomes that are consistent with outcomes produced in workably competitive markets as required by

s 162. ABAA supports the use of shared assets and processes which can be a source of efficiency gains. It provides a mechanism to share these gains between end-users of regulated FFLAS and services that are not regulated FFLAS, thereby giving effect to s 162(c). For example, ABAA may result in customers of services that are not regulated FFLAS contributing to shared costs which will flow through to lower costs and hence lower prices for end-users of regulated FFLAS.

- 4.74 In reaching this final decision, we consider that the fully allocated cost methodologies used in the Part 4 regime (ie, ABAA, OVABAA and ACAM) are the most appropriate methodologies to consider for Part 6. The reasons for this are that fully allocated cost approaches:
 - 4.74.1 are likely to produce outcomes consistent with those observed in workably competitive markets (in line with the Part 6 purpose set out under s 162 of the Act). This is because a firm in a workably competitive market will expect each service using the shared asset to contribute towards the recovery of the costs of the shared asset in the long term;
 - 4.74.2 work well in conjunction with the building block methodology and in applying the economic principle of FCM;
 - 4.74.3 enable costs to be identified and allocated to different services. This approach gives effect to the Part 6 purpose in s 162(c) given it will support the sharing of efficiency gains with end-users by regulated providers offering multiple services; and
 - 4.74.4 are more appropriate than alternative approaches, such as avoidable cost or incremental cost, for ID purposes as they are easier for stakeholders to understand.
- 4.75 Defining a causal relationship is a step that is required in order to allocate shared costs to specific activities. This will provide regulated providers with guidance when allocating shared costs. Using the ABAA methodology and identifying causal and/or proxy allocators will enable regulated providers to determine which cost drivers to use in allocating costs to FFLAS classes and to services that are not regulated FFLAS. The use of allocators which reflect a causal relationship (or proxies for such allocators) to allocate shared costs to regulated FFLAS promotes the long-term benefit of FFLAS end-users (in line with the purpose in s 162(c)). This is because it means that FFLAS end-users do not bear the full costs of assets that are used to supply other services as well, and therefore receive the benefit of lower prices for FFLAS.
- 4.76 Our final decision to use ABAA for the allocation of shared costs between FFLAS classes and services that are not regulated FFLAS is unchanged from our draft

decision. While we have introduced the concept of FFLAS classes in order to implement the Regulations, our decision to use the ABAA methodology has not changed. Submissions on our draft decision were supportive of the use of the ABAA methodology.⁴³² As discussed further below however, Chorus argued that alternative methodologies such as OVABAA should also be available.⁴³³

Our final decision is not to use ACAM or OVABAA

- 4.77 For the avoidance of doubt, our final decision means that regulated providers may not use ACAM and OVABAA when allocating shared costs between FFLAS classes and services that are not regulated FFLAS. Our final decision to exclude the use of the ACAM and OVABAA methodologies is unchanged from our draft decision. Below we explain our reasons for this decision.

ACAM – avoidable cost allocation methodology

- 4.78 We consider that in most cases, the ACAM approach would not lead to outcomes consistent with those produced in workably competitive markets and would therefore not be in line with the Part 6 purpose in s 162. The ACAM approach considers which costs would be avoided if a regulated provider no longer supplied services other than the regulated service. Under ACAM, the total shared costs that would be allocated to regulated FFLAS would be those costs that a supplier could not avoid if it were to no longer supply services that are not regulated FFLAS.

Axiom has previously recommended that ACAM should not be an allowable option in the cost allocation IM, as the ACAM approach would involve allocating a disproportionate total of shared costs to regulated FFLAS. We agree with the view expressed by Axiom, that “firms in workably competitive markets would expect to recover some portion of their common costs from all services in the long-term.”⁴³⁴

- 4.79 ACAM was originally allowed under the Part 4 regime but was removed from the IM as a cost allocation methodology for EDBs and gas pipeline businesses (GPBs) in the 2015/2016 IM review. It was however retained as a cap on total costs allocated to regulated services.
- 4.80 The main reason for including the ACAM methodology in the original Part 4 IM was to save regulated providers the cost of changing their accounting systems when common costs were relatively modest. We do not consider this rationale applies for

⁴³² Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 50; Enable and Ultrafast “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 7.2(b); 2degrees “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 8.

⁴³³ Refer to paragraph 4.83 below.

⁴³⁴ Axiom on behalf of Spark, “New regulatory framework for fibre” (21 December 2018), page 26-27.

regulated providers under Part 6, given the substantial share of common costs involved in telecommunications networks.

- 4.81 Stakeholders generally agreed with us excluding the use of ACAM for allocating shared costs between regulated FFLAS and services that are not regulated FFLAS. The exception was in relation to the calculation of the financial loss asset, where several access seekers supported the use of ACAM where fibre is treated as the incremental service. This will be addressed in the separate reasons paper on the financial loss asset to be published in November 2020.

OVABAA – Optional variation to the accounting-based allocation approach (OVABAA)

- 4.82 A variant of the ABAA methodology is OVABAA. Under OVABAA, a regulated provider could choose to allocate more shared costs to the regulated service than it would be able to under the ABAA approach. This could apply in circumstances where the regulated provider was looking to introduce an innovative new service which might not be commercially viable if the regulated provider was required to make a contribution to all costs that it would be sharing with regulated services based on causal —or proxy— factors, in line with ABAA.
- 4.83 Chorus has submitted that OVABAA should remain as an option in the IMs under Part 6. According to Chorus, any concerns that OVABAA could distort competition, and add complexity are unwarranted, on the basis that:⁴³⁵
- 4.83.1 under OVABAA, entry into unregulated markets would not be distorted, as the unregulated service would bear at least its incremental cost; and
 - 4.83.2 any additional complexity that arises from applying OVABAA is not a concern, as it will not be activated unless the benefits are sufficiently material to justify the administrative costs.
- 4.84 OVABAA was introduced in Part 4 to satisfy the statutory requirement of s 52T(3) of the Commerce Act (namely, the requirement that any cost allocation IMs must not unduly deter investment by a supplier of regulated goods or services in the provision of other goods or services). There is no corresponding requirement in Part 6.
- 4.85 The value in allowing OVABAA as a cost allocation methodology to promote new investment by regulated providers in new and innovative services and processes will depend on whether such investment would likely occur in the absence of applying this methodology. In other words, it will depend on whether other driving factors, such as cost minimisation and responding to competition, are likely to lead to a regulated provider making new investments in any event.

⁴³⁵ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), Appendix A, paragraphs 106.4-106.5.

- 4.86 There are some instances where we understand Chorus has undertaken new investment in innovative services (or is proposing to do so). These include the installation of optical network terminals (ONTs) with ‘in-home’ wireless capability inside end-user premises; fibre to the desktop; cloud computing servers; trialling 10Gbps GPON;⁴³⁶ and trialling the use of fixed-wireless technology for the lead-in to the end-user premises.⁴³⁷
- 4.87 In our view, these examples of new investment by Chorus do not support the need to apply OVABAA in order to promote competition or innovation.
- 4.88 For example, the use of WPON as a lead-in technology can reduce the incremental cost of the lead-in and avoid issues that can arise regarding property access (eg, shared driveways) relative to installing a fibre lead-in. As such, WPON may be a cost-effective alternative form of providing broadband access, rather than a new service that will compete with regulated FFLAS in the supply of inputs to downstream (retail) markets. Applying the same cost allocation approach to both lead-in technologies should reduce any distorting effects on decisions as to which lead-in technology to use.
- 4.89 We do not consider that OVABAA is appropriate for the reasons set out below.
- 4.89.1 **Increased risk of shared costs being disproportionately loaded onto regulated FFLAS:** Under OVABAA, as Chorus has noted, it is possible that the unregulated service would bear only its incremental cost, and that shared costs would be allocated to regulated FFLAS. While this may not amount to a cross-subsidy, the ability to load shared costs onto regulated FFLAS which are (at present) not subject to competition does not in our view best give effect to the requirement in s 166(2)(b). This is because allowing regulated FFLAS to bear a larger proportion of the shared costs will affect the competitive position of these services relative to other technologies used as inputs in downstream (retail) markets.
- 4.89.2 **Investment in new services is likely to occur in the absence of OVABAA:** In addition, the future threat of emerging technologies that will compete with FFLAS for the supply of inputs to downstream markets is likely to provide incentives for regulated providers to invest in new services, including those that re-use existing assets. Examples of this include using central offices to host cloud and edge servers or upgrading the copper network to compete in other regulated providers’ areas. Other innovations

⁴³⁶ See <https://company.chorus.co.nz/chorus-supercharges-new-zealands-broadband-10gbps-trial>

⁴³⁷ There is an outstanding issue of whether the use of fixed wireless access technology using unlicensed wi-fi spectrum (known as WPON) to access end-user premises is a regulated FFLAS service or not. With this service the end-user has a wi-fi based ‘home unit’ installed in their premises.

could include introducing new or improved FFLAS. Such investment is likely to occur even in the absence of OVABAA, given the likely emergence of competition in future, for example, from other regulated providers and/or from unbundlers offering competing layer 2 services.

- 4.89.3 Investment may be necessary to meet existing regulatory requirements:** In addition, Chorus may need to invest in order to meet the service level requirements of our determinations for copper services. Examples of these determinations include the Final pricing review determinations for Chorus' Unbundled Bitstream Access Service and unbundled copper local loop service (FPP determinations).⁴³⁸ This investment is also likely to occur in the absence of OVABAA.
- 4.89.4 Potential adverse impact on downstream competition and parallel markets:** The use of OVABAA to increase the proportion of shared costs allocated to regulated FFLAS may also have an adverse effect on competition in downstream and parallel markets (eg, for unbundlers who wish to provide their own edge servers). Accordingly, allowing the use of OVABAA will, in our view, not best give effect to the requirement to promote competition for the long-term benefit of end-users of telecommunications services in s 166(2)(b) to the extent relevant.
- 4.89.5 OVABAA would require a high level of prescription contrary to our general approach:** If OVABAA were permitted as a cost allocation methodology for fibre, it would need to be carefully prescribed. However, for the reasons set out in 4.52, a highly prescriptive approach is not considered best for the cost allocation IM. Careful prescription would be required because in areas of technological innovation, new assets can often be employed in the provision of both regulated FFLAS and services that are not regulated FFLAS. In such cases, it may be difficult to separate out the incremental costs (eg, due to the integrated nature of the respective features). For example, the incremental cost of including wi-fi router functionality in an ONT is low (it is a standard or common feature in other markets). If, however, an existing user wants to upgrade to a new ONT, this can be a costly exercise, as it requires the entire ONT to be replaced, which may require a technician visit.

⁴³⁸ Commerce Commission "Final pricing review determination for Chorus' unbundled bitstream, access service [2015] NZCC 38" (15 December 2015) (UBA FPP determination); and "Final pricing review determination for Chorus' unbundled copper local loop service (UCLL FPP determination), (together, the FPP determinations) For example, the UBA includes performance requirements relating to the local aggregation path which operates between the end-user DSLAM and Chorus' first data switch (or equivalent facility).

Submissions received on cost allocation methodology

- 4.90 Submissions on our draft decision reflected a range of views on the appropriate methodology for the allocation of shared costs between regulated FFLAS and services that are not regulated FFLAS.
- 4.91 Several submitters supported our draft decision to use ABAA and to exclude alternative methodologies such as OVABAA and ACAM.⁴³⁹
- 4.92 On the other hand, while Chorus supported the use of ABAA, Chorus also submitted that OVABAA should be retained as an option for cost allocation. Chorus noted that in a competitive market, firms will make entry decisions based on the incremental cost of that entry. According to Chorus, it is reasonable to expect that unregulated services will make some contribution to common costs. However, Chorus submitted that:⁴⁴⁰
- ... there is no basis for assuming that every service would be capable of generating a surplus over incremental cost consistent with an accounting-based allocation of shared costs. The accounting-based allocators the Commission requires will be based upon a measure of the physical use of the assets rather than the conditions in the relevant market. There will be occasions when the provision of an unregulated service is able to generate a surplus over incremental cost, but not a surplus that covers the accounting-based allocation.
- 4.93 Chorus argued that OVABAA may be appropriate where entry into a market could generate revenues that were in excess of incremental cost but insufficient to cover an ABAA-based contribution to shared costs. In such circumstances, OVABAA could reduce FFLAS prices as a contribution is made to shared costs. OVABAA could also lower regulatory barriers to entry and enhance competition in the related market.⁴⁴¹
- 4.94 In our further consultation paper we proposed that ABAA should be used to allocate shared costs between PQ FFLAS and ID-only FFLAS (and that OVABAA be excluded).⁴⁴² We noted that alternative cost allocation methodologies were likely to result in more limited sharing of efficiency gains, and may allow a disproportionate share of costs to be allocated to areas in which Chorus' FFLAS is subject to PQ regulation.

⁴³⁹ 2degrees "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 8.

⁴⁴⁰ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 171.

⁴⁴¹ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 174.

⁴⁴² Commerce Commission "Fibre input methodologies: Further consultation draft – reasons paper" (23 July 2020), paragraphs 3.164-3.165.

- 4.95 Chorus supported the use of ABAA to allocate shared costs between PQ and ID-only FFLAS.⁴⁴³ Chorus' support for ABAA in this context suggests that such an approach would not represent a barrier to Chorus entering or expanding its services into ID-only areas.
- 4.96 Several submitters argued that Chorus' support for OVABAA for cost allocation going forward is inconsistent with its support for ABAA in the calculation of financial losses.⁴⁴⁴ As noted above, the financial loss asset will be addressed in the separate paper to be published in November 2020.

Capping the shared costs allocated to regulated FFLAS to unavoidable costs

- 4.97 Our final decision is to introduce a cap on the allocation of shared costs to PQ FFLAS, ID-only FFLAS or ID FFLAS (whichever is applicable). This cap is based on the costs that a regulated provider could not have avoided incurring if it ceased supplying services that are not regulated FFLAS. The cap is to be applied to an allocation of an asset value or operating cost that would have a material effect on the total asset values or total operating costs allocated to the applicable FFLAS class.
- 4.98 We consider that applying a cap prevents regulated providers from earning excessive profits, and therefore promotes s 162(d). This approach also allows efficiencies to be shared with end-users in FFLAS markets: s 162(c).
- 4.99 A cap based on unavoidable costs differs from the stand-alone cost cap approach that has been proposed by several parties. For example, Spark has previously submitted that the level of shared costs allocated to FFLAS should be capped at the cost of providing FFLAS on a stand-alone basis.⁴⁴⁵ Spark submitted that such a cap is important to provide efficient investment signals and to ensure that "unnecessary and inefficient legacy assets" are not brought into the allocated RAB. Spark gave the example of ducts, noting that a fibre network is unlikely to require large duct systems used for legacy copper services.
- 4.100 Chorus has deployed its FFLAS network by taking advantage of existing assets such as central offices and ducts. In information obtained for our s 9A fibre study, and in its submission on our proposed approach to the new regulation framework for fibre, Chorus noted that it operates one network involving two technologies, copper and fibre, resulting in a significant sharing of network as well as non-network assets.

⁴⁴³ Chorus "Submission on Fibre input methodologies – further consultation draft reasons paper" (13 August 2020), paragraph 27.

⁴⁴⁴ 2degrees "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 15; Vocus "Cross-submission on Fibre input methodologies – Draft decision" (17 February 2020), paragraphs 35-38.

⁴⁴⁵ Spark "Fibre emerging views submission" (16 July 2019), paragraph 38.

Chorus has said it expects that the extent of sharing of assets to support regulated FFLAS will increase over time.^{446,447}

- 4.101 Chorus has previously stated that re-use of assets that pre-date the UFB initiative in delivery of the UFB initiative was significant. Chorus provided the example that it plans for 40% of its ducts, a major component of Chorus' asset base, to be re-used.⁴⁴⁸ Notably, however, information Chorus provided under current fibre ID and in its annual reports indicates that Chorus' assets that pre-date the UFB initiative are already significantly depreciated.⁴⁴⁹
- 4.102 As demand transitions from the legacy copper-based network to the new fibre-based network, it is likely there will be excess capacity (ie, unused space in ducts, space in central office buildings) which would not have been needed if a stand-alone fibre network were being deployed. For example, an efficiently-dimensioned "greenfield" fibre network (even allowing for future growth) might require smaller ducts than a network dimensioned for copper.⁴⁵⁰
- 4.103 In our view, however, there are several potential issues with Spark's specific proposal to cap the shared costs allocated to regulated FFLAS with reference to the costs of a stand-alone fibre network, as set out below:
 - 4.103.1 Spark's proposal introduces the concept of network optimisation. In the previous TSLRIC modelling for setting wholesale prices for the UCLL and UBA services under the FPP, network optimisation was used to dimension an efficient, new network.⁴⁵¹ However, under a BBM approach, we are looking at setting a revenue cap for Chorus with reference to an allocated RAB that takes account of re-use of existing assets that are shared between copper and fibre services.

⁴⁴⁶ Commerce Commission "Fibre 9A study report" (17 December 2018), paragraph 44.1.

⁴⁴⁷ Chorus "Submission in response to the Commerce Commission's invitation to comment on its proposed approach to the new regulation framework for fibre dated 9 November 2018" (21 December 2019), paragraph 187-188.

⁴⁴⁸ Commerce Commission "Final pricing review determination for Chorus' unbundled copper local loop service" (15 December 2015), paragraph E163, E194.

⁴⁴⁹ For example, Chorus' annual report 2019: Notes 1 and 10 to the financial statements indicate that these assets are subject to ongoing depreciation.

⁴⁵⁰ When installing a new duct, it is likely to be efficient to use a duct which contains some spare capacity (in the form of empty sub-ducts) to accommodate future growth. This will avoid (or at least defer) the need to dig a new trench (or equivalent) when the existing duct reaches capacity. For shared assets built after the launch of the UFB initiative, the dimensioning of such assets is likely to be based on demand forecasts for both regulated FFLAS and services that are not regulated FFLAS.

⁴⁵¹ Commerce Commission "Final pricing review determination for Chorus' unbundled bitstream access service [2015] NZCC 38" (15 December 2015) (UBA FPP determination); and "Final pricing review determination for Chorus' unbundled copper local loop service (UBA UCLL determination).

- 4.103.2 The stand-alone cost of deploying a new fibre-only network would include the cost of installing new shared assets such as ducts and central offices. In this scenario, the relevant cost of a re-used asset is not its replacement cost, but rather the depreciated value of the asset. The use of the book value of those assets may be lower than the stand-alone ‘new’ costs of those assets.
- 4.103.3 Certain incremental costs are likely to be insignificant. In the case of ducts, most of the cost of a duct relates to the cost of labour and machinery (eg, trenching, directional drilling, thrusting). To the extent that these costs do not vary significantly with the size of the duct, the incremental cost of installing ducts of varying sizes is likely to be insignificant.
- 4.104 We note that if the regulated provider were to free up capacity on shared network assets through the closure of the copper network (such as space in ducts or in central office buildings), that capacity could be deployed for services that are not regulated FFLAS. In this scenario, such re-use and sharing should be captured through the cost allocation between regulated FFLAS and those services that are not regulated FFLAS.
- 4.105 For the reasons outlined above, we do not consider that a cap based on the stand-alone costs of a new fibre-only network is appropriate. We consider that a cap based on unavoidable costs allows for sharing efficiencies that arise from relying on “re-used” assets with end-users, therefore giving effect to s 162(c).
- 4.106 In our view, it is appropriate to limit the allocation of shared costs to those that are unavoidable as the demand for copper-based services declines. The following examples illustrate how such a cap would work.

Example 1: Ducts and copper and fibre cables

- 4.107 In the case of ducts that house copper and fibre cables, the cost of the duct will be shared. As demand for copper diminishes, the cost of the duct will be allocated to regulated FFLAS. Although the size of the duct may be larger than that which would be deployed in a new fibre-only network (even allowing for future growth), the cost of the re-used duct is sunk. As a result, the costs avoided when copper services are discontinued will be small.
- 4.108 Specifically, for a pre-existing duct that houses both copper cables used for DSL services and fibre cables used for UFB, the cost of the duct would be shared between copper and fibre services. As demand shifts away from copper and towards fibre services, the allocation of costs to regulated FFLAS would increase. If demand for copper services were to completely disappear, the entire cost of the duct would be borne by regulated FFLAS.

4.109 In this case, Spark has argued that it would be inappropriate for regulated FFLAS to bear the entire cost of a duct which had originally been deployed to house copper, as such a duct would be larger than that required for FFLAS. Spark proposed a cap based on the stand-alone costs of a new fibre deployment, which is likely to require ducts of a smaller diameter. However, given the duct was a sunk cost, our view is that this would not be appropriate. The unavoidable costs where copper is no longer supplied would relate to the costs of the actual duct (even though this may result in excess space in the duct once demand for copper is zero), meaning our cap would be unlikely to take effect in this scenario.

4.110 To illustrate the difference between Spark's proposed stand-alone cost cap and our cost cap approach, we use the following example. If the depreciated cost of an existing large duct (initially deployed in the copper network, but with enough space to also accommodate fibre) is \$100, and the replacement cost of a small duct (which would be used in a new fibre-only deployment) is \$150:

- 4.110.1 the stand-alone cost cap (as per Spark's proposal) would be the cost of the duct used in a new fibre deployment, ie, \$150; and
- 4.110.2 the unavoidable cost cap (as per our decision) would be the unavoidable cost of the existing duct, ie, \$100.

Example 2: Excess space available in central office buildings

4.111 Excess space in central office buildings is one scenario where the unavoidable cost cap is likely to take effect. This includes space that is freed up in the central office as copper demand falls away, potentially being re-used or released for other purposes.

4.112 In the case of a central office building, as copper-based equipment is retired over time, this will free up space in the central office building. In this scenario, where the excess space in the central office could be put to alternative uses, the costs avoided when copper services are discontinued are likely to be material. Rather than allocating the entire cost of the central office building to regulated FFLAS, it may be appropriate to cap the cost at the level that is unavoidable as demand is shifted away from copper-based services. In this case, the costs that would be assigned to regulated FFLAS would only relate to the space in the central office occupied by equipment used to supply regulated FFLAS. The space that was used to supply copper-based services would be avoidable and hence would be excluded (ie, the regulated FFLAS would not carry those costs).

4.113 In this example, the costs avoided when copper services are discontinued may be more significant. Rather than allocating the entire cost of the central office building (including space vacated as copper equipment is retired) to regulated FFLAS, our view is that it would be appropriate to cap the cost at the level that is unavoidable as demand is shifted away from copper-based services. The costs that would be

assigned to regulated FFLAS would only relate to the footprint in the central office that is occupied by equipment used to supply regulated FFLAS. The space that was used to supply copper-based services would be avoidable and hence would be excluded (ie, the regulated FFLAS would not carry those costs).

- 4.114 By way of illustration and ignoring depreciation, if the cost of a pre-2011 central office building (including land), built to terminate copper loops and to house copper-based equipment (DSLAMs etc) is \$800,000, this cost may be allocated based on the proportion of central office space used by the copper equipment and FFLAS equipment. As copper-based equipment is phased out and the amount of FFLAS equipment increases, the costs of the central office would be re-allocated (for example, on the basis of the floor space occupied). As copper demand disappears, the cost of the entire central office could end up being borne by regulated FFLAS.
- 4.115 A new stand-alone fibre network is likely to require a smaller facility (possibly a roadside cabinet), the value of which might be \$100,000. In this case, the excess space at the central office could be put to alternative uses. The costs allocated to regulated FFLAS would be capped at the \$100,000.
- 4.116 In practice, the cost of the central office building itself may be largely depreciated (although significant value may remain in the land). As such, the use of a cap may not have a material effect. The question of materiality is discussed further below at paragraphs 4.124-4.142.

Example 3: Repurposing shared cabinets to be used solely for regulated FFLAS

- 4.117 In the case of decommissioning copper where the regulated provider repurposes a cabinet used for both copper and fibre to be used solely for regulated FFLAS, our decision will mean that the concurrent costs associated with the change would be capped based on the unavoidable costs (that is, the costs that would be incurred if the services that are not regulated FFLAS were no longer supplied). This would mean a portion of the costs would be allocated to regulated FFLAS. For the avoidance of doubt, regulated providers cannot allocate any costs that relate solely to the decommissioning of copper to regulated FFLAS, as these costs do not have a causal relationship with the provision of regulated FFLAS.

Submissions on capping the shared costs

- 4.118 Our decision to apply a cap on shared costs is unchanged from our draft decision, except that we have now included a materiality threshold, which is discussed further below at paragraphs 4.124-4.142.
- 4.119 In its submission on our draft, Chorus said that it understands the Commission's concern to ensure that costs that could be avoided as demand for copper services

declines cannot be recovered through regulated FFLAS.⁴⁵² However, Chorus' preferred approach would be to focus on the incentives of regulated suppliers to avoid inefficient costs, rather than to apply outcome-based regulatory measures. Chorus submitted that as demand for copper services falls away, reducing the cost base can be achieved by reducing operating expenditure, asset disposal, or seeking new revenue sources for the use of existing assets. Chorus submitted that if an avoidable cost cap is to be used, it should be based on forward-looking expenditure that a prudent firm could avoid and should only apply in exceptional circumstances where the supplier has a record of inefficient expenditure.

- 4.120 The other regulated providers submitted that any such cap on the allocation of shared costs should only apply where costs are material.⁴⁵³
- 4.121 Spark generally supported our proposed use of a cap on allocated costs, agreeing that "the unavoided cost test is a useful cross-check that can provide efficient signals if properly applied."⁴⁵⁴ Spark submitted that there is a significant risk that legacy copper inefficiencies and costs could be brought into the fibre business.
- 4.122 Our view remains that a cap on the allocation of shared costs to regulated FFLAS is appropriate. The steps that Chorus proposed taking in order to reduce the cost base as demand for copper services falls away can still be undertaken against the backdrop of a cap. For example, as demand shifts from copper to fibre services, it is likely that operating expenditure will change (for example, as the number and type of network faults change). However, disposal of assets, and seeking out additional revenue sources for the use of existing assets, can still take place. The use of a cap would simply provide a ceiling on the allocation of certain costs between regulated FFLAS and other services.
- 4.123 We also remain of the view that the implementation of such a cap should recognise whether the shared costs in question are sunk (ie, whether the costs would be unavoidable if a service contributing to those costs were no longer supplied). For this reason, the draft proposed to base the cap on the unavoidable costs. Where the costs of a pre-existing shared asset are genuinely sunk, as will be the case with pre-existing ducts, such a cap is unlikely to take effect. However, in other cases where surplus capacity can be more readily re-used, such as central office buildings, a limit on the costs allocated to regulated FFLAS may be more appropriate to ensure that

⁴⁵² Chorus "Submission on Fibre input methodologies: Draft decision" (30 January 2020), paragraph 186.

⁴⁵³ Northpower submission (30 January 2020), paragraph 11a; Enable and Ultrafast "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 7.5.

⁴⁵⁴ Spark "Fibre Input Methodologies: draft determination" (30 January 2020), paragraph 15.

regulated providers cannot continue to recover costs incurred in relation to legacy services from regulated FFLAS.

Cost cap will be subject to a materiality assessment

- 4.124 As noted above, in their submissions on our draft decision, several of the regulated providers raised the issue of whether the application of such a cap should be subject to a materiality assessment.⁴⁵⁵
- 4.125 We sought views on the issue of a materiality assessment in our further consultation paper in July 2020.⁴⁵⁶ We said that, in principle, we considered that including a materiality assessment as part of the cap on shared costs would be appropriate and consistent with promoting the outcomes of the purpose of Part 6 for the cost allocation IM.⁴⁵⁷
- 4.126 We proposed that regulated providers must apply the cap in all situations where it would have a material effect on the total costs allocated to regulated FFLAS. This would allow regulated providers to exercise some discretion in applying the cap.⁴⁵⁸
- 4.127 To ensure there is an appropriate check on the degree of discretion that regulated providers exercise, we said we would reserve the right to require them to justify any application that we challenge (for example, as part of our compliance reviews). This will incentivise regulated providers to both exercise caution in assessing materiality, and to document the basis for their decisions accurately. We noted that our draft IM already included requirements for objectivity in relation to cost allocation. The specific details of how regulated providers should document such justifications will be considered in PQ and ID.⁴⁵⁹
- 4.128 We received a number of submissions on our proposed inclusion of a materiality assessment.
- 4.129 Chorus did not submit on whether an assessment of materiality should be included as part of a cap. Chorus repeated its earlier submission, opposing the use of a cap altogether. According to Chorus, such a cap is not workable as it would rely on

⁴⁵⁵ Northpower “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 11a; Enable and Ultrafast “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 7.5.

⁴⁵⁶ Commerce Commission “Fibre input methodologies: Further consultation draft – reasons paper” (23 July 2020), from paragraph 3.168.

⁴⁵⁷ Commerce Commission “Fibre input methodologies: Further consultation draft – reasons paper” (23 July 2020), from paragraph 3.172.

⁴⁵⁸ Commerce Commission “Fibre input methodologies: Further consultation draft – reasons paper” (23 July 2020), paragraph 3.176.

⁴⁵⁹ Commerce Commission “Fibre input methodologies: Further consultation draft – reasons paper” (23 July 2020), paragraph 3.177.

information that does not currently exist. Chorus submitted it is unclear how the cap would apply.⁴⁶⁰

- 4.130 In response to Chorus' submission, we note that the issue of whether to include a cap on shared costs was not part of our further consultation paper. The question on which we were consulting was whether the cap on shared costs should be subject to a materiality assessment, as opposed to whether a cap should be applied at all.
- 4.131 We consider that Chorus should be able to identify instances where such a cap might take effect, eg costs that could be prudently avoided such as space vacated in a central office which is no longer required for FFLAS.
- 4.132 We note that for all regulated providers, this cap only applies to shared costs that would have a material effect on total costs allocated to regulated FFLAS (and not costs that are below this threshold). We consider that in doing so, it would be reasonable for the regulated providers to aggregate some related expense items or asset values, to avoid the need to assess each asset value or expense on an item-by-item basis.
- 4.133 We expect that these organisations would be able to draw on resources such as ongoing asset management planning and review of operating efficiency in order to make these assessments. We also note that benchmarking could be used to address gaps in a regulated provider's data set and to demonstrate compliance at a broader level, such as overall expenditure on network operational support systems.
- 4.134 We do not consider this requirement should be onerous in the case of many costs which are inherently stand-alone and necessary for the operation of a FFLAS network (eg, lead-ins, ONTs) or where efficiency gains can be readily demonstrated from the sharing of resources (eg, head office resources).
- 4.135 Spark submitted that the proposed materiality assessment should be extended to include consideration of whether there is a material effect on workable competition.⁴⁶¹
- 4.136 In its cross-submission on the further consultation paper, 2degrees supported Spark's view that the cap should be retained, and that the materiality threshold should also take into account the impact on workable competition. 2degrees also submitted that:⁴⁶²

⁴⁶⁰ Chorus "Submission on further consultation draft reasons paper" (13 August 2020), paragraph 71; Chorus "Cross-submission on further consultation draft reasons paper" (3 September 2020), paragraph 14.1.

⁴⁶¹ Spark "Submission on further consultation draft reasons paper" (13 August 2020), paragraph 29.

⁴⁶² 2degrees "Cross-submission on further consultation draft reasons paper" (3 September 2020), page 4.

It is consequently of considerable concern Chorus is advocating that the proposed cap should not be adopted, and is claiming they do not have the financial systems needed to determine what costs are unavoidable or to prevent over-allocation of costs.

If the proposed cap “is not workable because it would require information that does not exist” then Chorus should resolve this by making improvements to its financial systems.

- 4.137 We note the concerns raised by Spark and 2degrees regarding the potential impact of cost allocation on competition in adjacent markets. This was one of the reasons we decided against the OVABAA methodology, which could have allowed shared costs to be shifted away from prospectively competitive services. Given the exclusion of OVABAA, it is not clear to us that a further reference to material effect on workable competition is required.
- 4.138 Northpower submitted that materiality of shared costs should also be considered in absolute terms, not just as a proportion of total costs.⁴⁶³ Northpower also submitted that it may integrate parts of its fibre access business with other parts of the Northpower group which would result in an increased level of cost allocation.
- 4.139 In our view, considering materiality in absolute terms as proposed by Northpower could be problematic. This is because the largest regulated provider, Chorus, is more than twenty times larger than the smallest. As such, an absolute dollar amount that may be relatively insignificant for Chorus, and thus have an immaterial impact on the prices Chorus could charge for individual connections under the MAR, may be significant to a smaller regulated provider like Northpower LFC2. For a smaller provider, it may have a material impact on reported profitability or prices charged for regulated FFLAS connections. In light of this, we also consider that the amount that regulated providers determine is material must be subject to scrutiny.
- 4.140 We also consider that if the Northpower group were to integrate aspects of its fibre business into other parts of the group, the resulting combined operations may result in increased levels of cost sharing in both absolute and relative terms. As such, decisions about cost allocation may become more significant to the cost of regulated FFLAS. We also note that the Northpower group already has obligations regarding related party transactions and cost allocation under Part 4 of the Commerce Act. As such, it should already have processes in place that will assist with implementing the new Part 6 regulation and ensure double recovery between different regulated services is avoided.

⁴⁶³ Northpower “Submission on further consultation draft reasons paper” (13 August 2020), paragraph 3.3.

- 4.141 Enable and Ultrafast supported the proposed materiality assessment and considered it a proportionate approach to regulation.⁴⁶⁴
- 4.142 In summary, our final decision is that a materiality assessment is to be included as part of the cap on shared costs. Regulated providers must apply the cap in all situations where it would have a material effect on the total costs allocated to regulated FFLAS.

Implementation of ABAA

- 4.143 We consider a less prescriptive approach to cost allocation best promotes the objectives in s 166(2) while still meeting the purpose of s 174 (for the reasons set out at paragraph 4.53 above). One of the main reasons is that a less prescriptive approach is better suited to an environment of high future uncertainty.
- 4.144 We consider that uncertainty exists in relation to technology changes, uptake of FFLAS, and the level of cost sharing between FFLAS classes and services that are not regulated FFLAS, as well as between different FFLAS. In this context, a less prescriptive approach is likely to be more robust against future changes in market circumstances or the scope of regulation. It will also avoid the potential for unintended consequences that may result from an overly prescriptive approach.
- 4.145 Our approach to allocating costs between FFLAS classes and services that are not regulated FFLAS, aims to:
- 4.145.1 ensure regulated providers have incentives to improve efficiency by offering multiple services and that FFLAS end-users can share in those efficiency gains (consistent with s 162(b) and (c) of the Act);
 - 4.145.2 ensure costs are not over recovered due to double recovery (and as such limiting regulated providers in their ability to extract excessive profits, giving effect to s 162(d));⁴⁶⁵
 - 4.145.3 mitigate potential risks to competition through the misallocation of costs to regulated FFLAS (giving effect to s 166(2)(b)).

Commission's review of allocators chosen by regulated providers

- 4.146 In our emerging views paper, we proposed that allocators must meet certain criteria: ie, they must be consistent, objective, measurable and timely.⁴⁶⁶ These criteria

⁴⁶⁴ Enable and Ultrafast “Submission on further consultation draft reasons paper” (13 August 2020), paragraph 8.3.

⁴⁶⁵ We discuss our approach to double recovery later in this chapter (see from paragraph 4.275).

⁴⁶⁶ Commerce Commission “Fibre regulation: Emerging views: Technical Paper” (21 May 2019) at paragraphs 343, 355, 365-368.

would apply for establishing the value of core fibre assets in the initial allocated RAB, and for PQ and ID after the implementation date.

- 4.147 The issue of allowing regulated providers to choose from a range of different cost allocators was discussed at the 25 June 2019 workshop. A review of a Chorus response to a s 98 information request, annual accounts and information provided under ID confirmed that taking different approaches to selection of allocators will have a material impact on the total core fibre assets in the initial allocated RAB.
- 4.148 Axiom for Spark considered more guidance and oversight regarding the choice of allocators was required to prevent regulated providers from selecting allocators that did not best serve the promotion of competition objective set out in s 166(2)(b). Axiom recommended that the cost allocation IM should direct the regulated providers to select the allocation approach that would be likely to best promote the competition objective, and that the Commission should review allocator choices to ensure regulated providers are acting in compliance with such a directive.⁴⁶⁷
- 4.149 Having reviewed the submissions and considered the wider context of Part 6, our final decision is that the review of cost allocators proposed by the regulated providers subject to PQ regulation can be undertaken via the PQ process. The cost allocators accepted under PQ will have to be applied to ID for the costs approved under PQ. Our reasons for this are explained later in this chapter and include leveraging off the future PQ review process and ensuring consistency between PQ and ID regulation.
- 4.150 We will review the allocators used by all regulated providers for ID as part of our analysis leading into our future summary and analysis reports in accordance with s 187 of the Act. We will also review allocators during future pricing reviews for PQ regulation.
- 4.151 We consider that the principles we proposed in the emerging views paper, such as consistency and objectivity, remain relevant. We anticipate that we will consider these principles when reviewing PQ proposals, preparing summary and analysis reports and conducting pricing reviews. Accordingly, we expect the regulated providers to apply these principles in applying the cost allocation IMs. For example, we require regulated providers to apply ABAA consistently across reporting periods and similar types of assets or operating expenses.
- 4.152 When we review regulated providers' choice of allocators, we anticipate that we will consider the total cost allocated to regulated FFLAS relative to that which would have been allocated if other allocators were used. If the total cost for major cost items or groups of costs varies materially from that which other relevant allocators

⁴⁶⁷ Axiom Economics "Fibre regulation emerging views - A report for Spark" (July 2019), pages 9-10.

yield, we may scrutinise the allocation further, provide feedback to the regulated provider, or take other action. For example, we may note the impact of different allocator choices in our summary and analysis reports or adopt another allocator that we consider has a causal relationship as a cap on shared operating costs when setting PQ paths.

- 4.153 We recognise that in applying cost allocators there may be situations where it may be more appropriate not to apply the same allocator across all items in an asset type or operating cost category. In such cases, we expect that regulated providers would recognise this and apply different cost allocators at a more granular level, but would do so in a consistent manner. For example, if the causal driver for an asset type in areas covered by the UFB areas (eg, end-users) was materially different to that for non-UFB areas (eg, ports), the regulated providers should recognise this by separating those assets in the UFB areas from those in non-UFB areas for cost allocation purposes. By way of guidance, in such a scenario the regulated providers should consistently apply the one cost allocator to each of the two pools of (unallocated) asset values (ie, apply ports as the cost allocator for all assets of that type in non-UFB areas).
- 4.154 We also recognise that over time, there may be some situations when changing the cost allocator would better reflect causality. In such situations, we expect the regulated providers to change the cost allocators and to provide justification for the change under ID. To provide an indication, possible situations may include when regulated providers introduce new information reporting systems that provide more accurate data, or new operating processes which change the causal relationship.

Causality and timing between an asset and its usage

- 4.155 A review of stakeholder submissions and consideration of the ongoing transition from copper to fibre, as well as Chorus' responses to s 98 notices and current fibre ID, shows that different cost allocation outcomes can result depending on whether causality is determined based on the long-term use of the asset (eg, UFB), or whether it also factors in other uses of the asset throughout its life (for example, if a layer 2 asset was used for copper-based broadband access services prior to UFB).
- 4.156 The definition of “fibre asset” in s 177(6)(b) of the Act provides that it is “employed in the provision of FFLAS”. To ensure consistency with this definition, we consider that causality should be applied with consideration of how an asset is employed at each stage of its life. This is particularly relevant to Chorus, whose multiservice network is transitioning from copper to fibre access technology. As such, our definition of a “causal relationship” in the determination includes how an asset is employed (ie, how a factor “influences the employment” of an asset) to provide regulated FFLAS.

- 4.157 Our decision recognises that in a workably competitive market a firm, in making investment decisions about a multiservice network, is likely to factor in the benefits the investment makes to all services provided on its network across the life of the asset, and not just at some future date (eg, after copper has been decommissioned). Our final decision is therefore consistent with the purpose of Part 6 under s 162(c): allowing end-users to share the benefits of efficiency gains in the supply of FFLAS.
- 4.158 In applying this definition of a causal relationship, we expect that regulated providers will recognise the employment of fibre assets to meet other commercial considerations, including other regulatory obligations. We also recognise that there are cases where the sharing is incidental and does not represent the purpose of the investment (ie, it does not determine causality).
- 4.159 We consider that this definition of a causal relationship should also help address concerns raised in submissions about double recovery, as it requires consideration of asset usage for services that are not regulated FFLAS, such as the use of fibre assets to meet the service standards in the FPP determinations.
- 4.160 We also considered the more prescriptive option of explicitly stating that fibre assets (including those commissioned after the start of the UFB initiative) that were being used to meet the service level requirements of the FPP determinations would be regarded as a causal driver of investment. We did not proceed with this option as we consider the definition of a causal relationship adequately addresses the use of assets and operating expenses for both regulated FFLAS and services that are not regulated FFLAS.

Asset specificity

- 4.161 We consider that taking a consistent approach to asset specificity (also referred to as “asset granularity”) across cost allocation and asset valuation is important to the effective implementation of the BBM in ID regulation. This is because the cost allocation IM will be applied to the unallocated asset values determined under the asset valuation IM including in situations where assets may be removed from the allocated RAB (for example, as a result of deregulation).⁴⁶⁸
- 4.162 We consider there may be situations where for practical purposes, it may be appropriate for cost allocation to be applied at a more granular level than is used for asset valuation. In allocating costs at this more granular level, we would expect regulated providers to do so in a way that allows for the lower level of granularity to be directly mapped to the higher level of aggregation used elsewhere for Part 6 purposes. This approach allows for greater transparency and reconciliation between the different parts of the BBM. For example, if for cost allocation, certain asset types

⁴⁶⁸ Our approach to asset granularity (including operating costs) is described above in the asset valuation chapter at paragraphs 3.308-3.348.

are reported at a lower level (ie, a more disaggregated level of detail) than is reported for asset valuation purposes in the unallocated RAB, then each disaggregated item should directly map to one and only one of the asset categories used for asset valuation purposes in the unallocated RAB.⁴⁶⁹ Equally, the sum of each asset type's disaggregated items should equal the aggregate value reported in the corresponding RAB.

Use of readily available data

- 4.163 In our emerging views paper, we explained how the level of aggregation at which network data is prepared will influence the level of cost allocation required for a network with multiple services provided using shared assets and/or processes.
- 4.164 If decisions on whether an asset is shared or directly attributable are made at a low level of aggregation (eg, ducts on a cabinet level), the level of direct attribution is likely to be higher than if attribution is determined at a more aggregated level (eg, all ducts in a suburb). This is because the larger pool of assets is more likely to include one or more shared assets than the small pool of assets. The same reasoning can apply for operating expenses.
- 4.165 Our review of information provided in response to s 98 requests and under current fibre ID confirmed this effect applies to regulated FFLAS when the regulated provider also supplies services that are not regulated FFLAS using shared network assets.
- 4.166 To reduce the pool of shared network costs (and hence the potential size of variances in the allocation), we expect that when the regulated providers make decisions on the attribution of costs between regulated FFLAS and services that are not regulated FFLAS they will use all relevant information. For example, we expect the regulated providers to use data in GIS and fixed asset registers.
- 4.167 We consider that reducing the scope for variance in cost allocation should improve the accuracy of disclosures and proposals and therefore our ability to assess them and to make appropriate capital expenditure and PQ path approval decisions. In our view, this will promote the Part 6 purpose by reducing the risk that a regulated provider is able to extract excessive profits (s 162(d)). This approach is also consistent with the requirement to promote competition for the long-term benefit of all telecommunications end-users under s 166(2)(b), since appropriate allocation of costs to regulated FFLAS ensures that the competitive position of regulated FFLAS relative to other services used as inputs in downstream (retail) markets is not distorted.

⁴⁶⁹ For example, if the higher-level asset is land and buildings and it is worth \$50 million, then it could possibly be disaggregated into land and buildings – rural worth \$20 million, and land and buildings – urban worth \$30 million.

4.168 We expect that in practice, the compliance costs of this final decision will be proportionate to the level of sharing of assets that the regulated provider owns (as opposed to assets owned by related parties), and that it should not impose material compliance costs for some of the smaller regulated providers. We also expect the compliance costs to be reasonable as we understand from our experience with current fibre ID and the s 9A study into fibre services that all regulated providers keep records about their network assets. This record keeping is required as a matter of good asset management practice.⁴⁷⁰ We also note that the smaller regulated providers are part of groups that are already allocating costs under Part 4. As such, they should be familiar with and already have systems in place that will help them to comply with these requirements.

Final decisions: allocation of costs between different regulated FFLAS

- 4.169 Our decision is that there will not be prescriptive cost allocation IM rules for allocating shared costs between different regulated FFLAS at this time (with the exception of allocation of shared costs between PQ FFLAS and ID-only FFLAS). This decision remains unchanged in substance from our draft decision.
- 4.170 Regulated providers must separately identify directly attributable costs and shared costs according to product groups. The term “product groups” means a group of regulated FFLAS that differ in configuration but bear essentially the same costs, as specified in our PQ and ID determinations.⁴⁷¹ The term “product groups” replaces the term we used in our draft decision, “FFLAS product families”.⁴⁷² Our decision however remains unchanged in substance from our draft decision.
- 4.171 A regulated provider whose FFLAS are subject to both PQ and ID regulation must allocate costs between specific classes of regulated FFLAS (ie, PQ FFLAS, and ID-only FFLAS).⁴⁷³ Specifically, regulated providers whose FFLAS are subject to both PQ and ID regulation must use the ABAA methodology when allocating costs between PQ FFLAS and ID-only FFLAS. This decision is unchanged from our further consultation paper.⁴⁷⁴
- 4.172 A regulated provider whose FFLAS are subject to both PQ and ID regulation must apply the cost allocation approach that the Commission specifies in a future IM for

⁴⁷⁰ Commerce Commission “Fibre 9A study report” (17 December 2018), paragraphs 25-29.

⁴⁷¹ Figure 2.3, page 39 in the regulatory framework chapter sets out how product groups fit into the different FFLAS that may be provided by a regulated provider.

⁴⁷² Where referring to submissions in which submitters referred to the term “FFLAS product families”, in line with our draft decision language, we will quote from those submissions directly.

⁴⁷³ Refer to paragraphs 4.55-4.59 above.

⁴⁷⁴ Commerce Commission, “Fibre input methodologies – Further consultation draft – Reasons paper” (23 July 2020), paragraphs 3.161-3.167.

any additional FFLAS classes. This decision formalises a proposal we presented in our further consultation paper.⁴⁷⁵

Explanation of allocation between different regulated FFLAS

- 4.173 For Chorus, the introduction of reg 6 and the exemption for certain of its FFLAS from PQ regulation means that many of Chorus' costs for both assets and operating expenses must be allocated between different FFLAS classes (refer to paragraphs 4.55-4.59 above). For example, the cost for central offices may be shared between FFLAS subject to both PQ and ID regulation (PQ FFLAS), and FFLAS subject to ID regulation only (ID-only FFLAS). As such, in this section we also discuss the rules that Chorus (and any other regulated provider whose FFLAS in future becomes subject to both PQ and ID regulation) must apply to costs allocated between different FFLAS classes.
- 4.174 In addition, in future we may wish to understand how regulated providers' costs are incurred across different regulated FFLAS. For example, we may need to understand regulated providers' costs to inform our future assessments of the structure of regulated FFLAS prices under ID regulation.

Rationale for our decision

- 4.175 The allocation of common costs between different regulated FFLAS can inform our future assessments of the structure of FFLAS prices under ID regulation. Cost allocation between different regulated FFLAS can also promote efficient outcomes for the long-term benefit of end-users of specific regulated FFLAS. The way that prices are structured for different FFLAS may have impacts on the emergence or development of competition in the provision of downstream wholesale or retail services. This is because FFLAS may be used as inputs into the supply of competing downstream services. Examples include the following:
 - 4.175.1 an access seeker may use PONFAS to offer layer 2 bitstream services in competition with the regulated provider's layer 2 services;
 - 4.175.2 an infrastructure-based competitor (such as a mobile operator) may use DFAS to supply retail mobile and fixed-wireless broadband services which would compete with retail fibre broadband services supplied over the regulated provider's FFLAS network.
- 4.176 Without appropriate cost allocation and a reflection of these costs in prices, regulated providers might set the prices of FFLAS used in downstream markets (eg,

⁴⁷⁵ Commerce Commission, Fibre input methodologies – Further consultation draft – Reasons paper (23 July 2020).

DFAS and PONFAS) at a level that makes these services non-viable for competitors supplying downstream services.

- 4.177 The potential for the promotion of actual competition is an important feature of Part 6 of the Act which distinguishes it from the Part 4 regulatory regime. Section 166(2)(b) provides that the Commission must consider, to the extent it considers it relevant, the promotion of workable competition in telecommunications markets for the long-term benefit of end-users.⁴⁷⁶ In the telecommunications sector, there is more potential for infrastructure-based competition to emerge than in those sectors regulated under Part 4. Examples include competition from fixed wireless services (eg, dedicated wireless broadband or 5G mobile), and other fixed line services (eg, hybrid fibre-coaxial).
- 4.178 There is also greater potential for access-based competition, such as where an access seeker purchases an unbundled fibre service. Given that regulated providers offer a suite of access services, the relative prices for wholesale services will affect access seekers' decisions regarding how to deliver retail services to end-users. This could create incentives for regulated providers to protect their revenue streams by setting prices that encourage access seekers to purchase layer 2 services instead of unbundled fibre services (ie, by pricing layer 1 services at a higher level).
- 4.179 Dependent on the commercial outcome from unbundling layer 1 FFLAS, in future, regulated providers may be required to allocate costs between layer 1 and layer 2 services to enable us to set the price for an unbundled service under PQ regulation (or monitor the prices under ID regulation, respectively). Current disclosures show that regulated providers are able to distinguish between many layer 1 and layer 2 costs.
- 4.180 Given that the allocation of shared costs between different regulated FFLAS has the potential to affect competition, we have included a high-level rule requiring regulated providers to separately identify directly attributable costs and costs that are shared between different regulated FFLAS. This rule will also help us to assess whether prices reflect efficient costs of supplying different regulated FFLAS. In our view, this high-level approach best gives effect to s 166(2)(b), as discussed below.
- 4.181 In reaching this view, we have considered whether a more prescriptive approach might be appropriate. We consider, however, that during the first regulatory period, any areas of competitive concern relating to the allocation of shared costs between different regulated FFLAS are likely to be mitigated for the following reasons.
 - 4.181.1 Chorus is required to offer unbundled layer 1 services on an equivalent non-discriminatory basis from 1 January 2020. As discussed at paragraph

⁴⁷⁶ Refer to regulatory framework chapter.

2.12 of the regulatory framework chapter, these obligations are set out in the Fibre Deeds which continue to have effect beyond 2020. These obligations are designed to deter anti-competitive behaviour and to allow access seekers to compete with vertically integrated regulated providers (in this case, the vertical integration is between layer 1 and layer 2 FFLAS).

- 4.181.2 DFAS pricing is capped at the contract price for the first regulatory period, meaning that cost allocation would have no impact on the maximum price for DFAS in that first period.
- 4.182 On 30 September 2020, we published final guidance on our approach to the equivalence and non-discrimination obligations when exercising our monitoring and enforcement powers under the Act.⁴⁷⁷ In discussing equivalence of pricing, we outlined our view that the margin between a vertically integrated regulated provider's upstream and downstream prices must satisfy an economic replicability test (ERT) by covering the costs of the downstream service.⁴⁷⁸ Specifically, when assessing whether the ERT is satisfied, the margin between the upstream and downstream prices must as a minimum cover the regulated provider's own downstream costs, based on the long-run avoidable costs of the downstream service. The long-run avoidable cost standard does not include any contribution towards common costs in respect of the upstream and downstream services.
- 4.183 Our final guidance acknowledges that there may be circumstances in which an alternative cost standard may be appropriate. For example, in markets in which there are economies of scale or scope (as a result of large fixed or common costs), it may be appropriate to use an alternative standard that takes these into account.⁴⁷⁹
- 4.184 As noted by both Enable and Ultrafast Fibre, information on costs and cost allocation between different regulated FFLAS can be gathered via ID to ensure the Commission is better informed of the nature and degree of costs shared between different regulated FFLAS.⁴⁸⁰ Such information will reveal shared costs based on several characteristics, including geographic coverage, individual services (in the case of unbundled access services), product groups (refer to paragraph 4.170 above), and the level of network functionality.

⁴⁷⁷ https://comcom.govt.nz/_data/assets/pdf_file/0027/225972/Unbundled-layer-1-fibre-service-Equivalence-and-non-discrimination-guidance-30-September-2020.pdf

⁴⁷⁸ The ERT is discussed in more detail in "Unbundled-layer-1-fibre-service-Equivalence-and-non-discrimination-guidance-30-September-2020", page 41

⁴⁷⁹ Unbundled-layer-1-fibre-service-Equivalence-and-non-discrimination-guidance-30-September-2020", paragraph 3.58

⁴⁸⁰ Enable Networks and Ultrafast Fibre "Submission on NZCC fibre regulation emerging views: technical paper" (16 July 2019), page 16.

4.185 We consider this information to be important as:

- 4.185.1 the nature and degree of sharing is relevant to future decisions on issues such as unbundling and the choice of cost allocator; and
- 4.185.2 having information captured across all FFLAS will ensure data integrity as it reduces scope for gaming how data is reported relative to *ad hoc* requests.

4.186 We have arranged FFLAS into service categories (refer to paragraph 2.108 of the regulatory framework chapter above). Figure 2.3 in the regulatory framework chapter sets out how product groups fit into the different FFLAS that may be provided by a regulated provider.

4.187 We understand, however, that regulated providers may not be able to separately identify costs for all FFLAS at this level. For example, it may not be possible to distinguish voice services from other Bitstream PON services.

4.188 This issue was pointed out in the Enable and Ultrafast submission:⁴⁸¹

From an efficiency perspective, our preliminary view is that the following four services should be designated as product families: bitstream (PON and P2P), fibre P2P, colocation and interconnect, and backhaul (ICO). This is consistent with a proportionate approach to regulation.

4.189 In setting the ID requirements, we may arrange regulated FFLAS into “product groups” which— as noted at paragraph 4.170 above— means a group of regulated FFLAS that differ in configuration but bear essentially the same costs.⁴⁸²

Given that these product groups will align with the reporting capabilities of the regulated provider, we consider that this should reduce the cost to regulated providers of providing the information, which was a concern raised in submissions.

4.190 Chorus also noted that “there is likely to be a significant cost to generating and reporting on this information, the Commission should have a clear purpose as the requirement will ultimately impose costs onto consumers.”⁴⁸³

4.191 Northpower supported “the absence of a requirement to allocate costs between FFLAS services, which would be costly and unnecessary” and “note[d] and

⁴⁸¹ Enable Networks Limited and Ultrafast Fibre Limited, Submission on NZCC Fibre Input Methodologies: Draft Decision – Reasons Paper and Draft Fibre Input Methodologies Determination, 30 January 2020, Page 7.

⁴⁸² We referred to product groups in our “Fibre-input-methodologies-Draft-decision-paper-19-November-2019” as product families.

⁴⁸³ Chorus, Submission on Fibre input methodologies: Draft decision –reasons paper dated 19 November 2019 and Draft fibre input methodologies determination 2020, 11 December 2019, Page 53

support[ed] the potential for pricing methodology disclosures to provide information about cost recovery instead.”⁴⁸⁴

- 4.192 In response to Northpower, we note that our IM for the first regulatory period does not require shared and common costs to be allocated between different FFLAS service categories. We consider that disclosure of pricing methodologies that are not based on a robust cost allocation methodology is unlikely to provide interested persons with significant understanding of whether the cost recovery is efficient.

Level of prescription and the different regulatory periods

- 4.193 We may request information for the first regulatory period given it exists in regulated providers’ general ledger or other systems. We do not consider this would place undue burden on regulated providers.
- 4.194 After the first regulatory period, both regulated providers and the Commission will have a better understanding of the shared use of assets between different regulated FFLAS. We can then consider whether more prescriptive rules should be set for allocating costs between different regulated FFLAS. In this regard, we agree with Chorus:⁴⁸⁵
- 4.195 “We need time to understand how everything hangs together in this regime before implementing even more complexities, especially given the risk of getting it wrong is significant as this is new territory for the Commission.”
- 4.196 Several parties have argued that a more prescriptive approach should be taken to the allocation of common costs between different regulated FFLAS in order to promote competition. For example, Axiom submitted that many of the costs of providing regulated FFLAS will be shared across multiple services, and that the regulated providers will have strong incentives to allocate those common costs in ways that soften the competitive threats that they face.⁴⁸⁶ According to Axiom, this may include allocating a disproportionate share of common costs to fibre services that are used as inputs into competing services, such as where DFAS is used as an input into mobile broadband services (which compete with regulated FFLAS-based services in downstream markets), and where layer 1 services are used to supply competing layer 2 services.

⁴⁸⁴ Northpower, Submission on [Draft] Fibre Input Methodologies Determination 2020 and Fibre input methodologies draft decision - reasons paper, 30 January 2020, Page 3.

⁴⁸⁵ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), page 115.

⁴⁸⁶ Axiom on behalf of Spark, “New regulatory framework for fibre” (21 December 2018), pages 12, 17, 18.

- 4.197 In contrast, some regulated providers submitted that the allocation of costs between FFLAS product families is neither necessary nor appropriate for the first regulatory period and would represent an unnecessary burden at this stage in regulation.⁴⁸⁷ Chorus submitted that “the same assets are used to deliver a range of different services”,⁴⁸⁸ which means that there would be arbitrary allocation due to a high degree of sharing of assets with no clear causal driver.

Allocation of costs between PQ and ID-only FFLAS classes

- 4.198 In our further consultation paper, we added rules for allocating shared costs between PQ FFLAS and ID-only FFLAS.⁴⁸⁹ We proposed to adopt the ABAA methodology, which is used for the allocation of costs between regulated FFLAS and services that are not regulated FFLAS. These draft decisions specified how a regulated provider whose FFLAS are subject to both PQ and ID regulation (ie, at implementation only Chorus) must allocate costs between regulated FFLAS classes (ie, PQ FFLAS, ID FFLAS and ID-only FFLAS, and any additional FFLAS we may specify in the future).⁴⁹⁰
- 4.199 This provides certainty for the application of the cost allocation IM under PQ and ID regulation.
- 4.200 In line with the existing rules applicable to the allocation of costs between regulated FFLAS and services that are not regulated FFLAS, we proposed that the cost allocation IM should require the use of the ABAA methodology. This would exclude the potential for Chorus to apply other methodologies, such as OVABAA, which would likely result in more limited sharing of efficiency gains between all major groups of FFLAS end-users. We consider this approach will promote s 162(c) given it will allow end-users to share the benefits of efficiency gains in the supply of FFLAS.
- 4.201 We also consider that the decision to require the use of ABAA would promote s 162(d) in that it would limit the ability of a regulated provider subject to PQ to extract excessive profits in PQ areas where it faces zero or limited competition. If

⁴⁸⁷ Northpower Fibre Limited and Northpower LFC2 Limited, “Submission on [Draft] Fibre Input Methodologies Determination 2020 and Fibre input methodologies draft decision – reasons paper”, 30 January 2020, para 10
Chorus, “Submission on Fibre input methodologies: Draft decision – reasons paper dated 19 November 2019 and Draft fibre input methodologies determination 2020 dated 11 December 2019, 30 January 2020, para 183

⁴⁸⁸ Chorus “Submission in response to the Commerce Commission’s fibre regulation emerging views dated 21 May 2019” (16 July 2019), Appendix A paragraph 107.2

⁴⁸⁹ Commerce Commission “Fibre input methodologies: Further consultation draft – reasons paper” (23 July 2020), paragraph 3.161.

⁴⁹⁰ For ease of reference, we refer to these two categories as “PQ FFLAS” and “ID-only FFLAS” respectively. See above at paragraph 4.55.

they were able to select a particular cost allocation approach, they may choose a combination of approaches that result in a disproportionate share of costs being allocated to PQ areas which would flow through to higher prices for FFLAS end-users in PQ areas, and excessive profits.

- 4.202 We are not prescribing a particular allocator that regulated providers must use when allocating shared costs between PQ FFLAS and ID-only FFLAS. This will allow Chorus to choose, and the Commission to review and approve, cost allocators that reflect the causal drivers for the relevant shared costs. We consider that this flexibility should allow Chorus to take account of the geographic differences in cost drivers in the PQ and ID-only allocation as well as those aspects driven by connection numbers.⁴⁹¹

Submissions on the allocation of costs between FFLAS classes for regulated providers subject to both PQ and ID regulation

- 4.203 In submissions on our further consultation paper, there was general support for our proposal to use ABAA for the allocation of shared costs between different FFLAS classes (ie, PQ and ID-only FFLAS, and any additional FFLAS classes).
- 4.204 Chorus, Vocus, 2degrees and Enable and Ultrafast all supported the use of ABAA to allocate costs to PQ and ID-only FFLAS.⁴⁹² No submitter opposed the use of ABAA in this context.
- 4.205 Enable and Ultrafast also supported our draft view not to prescribe allocators in the IM.⁴⁹³
- 4.206 Chorus submitted that:⁴⁹⁴

for RP1, we agree with the Commission that there's no need to introduce additional classes of FFLAS and additional RABs beyond those required for PQ FFLAS, ID FFLAS and ID-only FFLAS (except where the Act requires UFB versus non-UFB for the purposes of calculating the financial loss asset).

⁴⁹¹ For example, the allocator 'used length of linear assets' could be an option to address differences in costs due to different average distance from the central office for PQ and ID-only connections. Chorus submitted that this allocator should be included in the list of allocator types and we have added it to the list (Chorus, "Submission on Fibre input methodologies: Draft decision – reasons paper dated 19 November 2019 and [Draft] Fibre Input Methodologies Determination 2020 (11 December 2019), clause 167.2)

⁴⁹² Enable and Ultrafast Fibre "Submission on further consultation draft reasons paper" (13 August 2020), paragraph 8.2; 2degrees "Submission on further consultation draft reasons paper" (13 August 2020), page 4; Vocus "Submission on further consultation draft reasons paper" (13 August 2020), paragraph 7.

⁴⁹³ Enable and Ultrafast Fibre "Submission on further consultation draft reasons paper" (13 August 2020), paragraph 8.2.

⁴⁹⁴ Chorus "Submission on further consultation draft reasons paper" (13 August 2020), paragraphs 27, 53, and 58.

- 4.207 In response to Chorus' submission that it "agree[s] with the Commission", for clarity, we note that in our draft decision we stated that we would not impose prescriptive cost allocation rules for allocation between different regulated FFLAS during the first regulatory period. We did not, however, undertake that we would not specify additional FFLAS classes during the first regulatory period.
- 4.208 Having considered submissions received in response to our further consultation, our final decision is to add a specific rule to the cost allocation IM that regulated providers must apply the ABAA methodology for the allocation of shared costs between PQ FFLAS and ID-only FFLAS.
- 4.209 We reserve the right to specify additional FFLAS classes during regulatory period one as this would allow us to address future regulatory needs where additional FFLAS classes may be required during this period. To foreclose this option could impose unnecessary constraint on the ability of PQ and ID regulation to achieve their purposes in the next few years.

Approach for cost allocation between additional FFLAS classes

- 4.210 We also note cost allocation issues may arise if, in future, we require that new RABs that are based on additional FFLAS classes and other views of costs, including operating expenses, are constructed for additional FFLAS classes.⁴⁹⁵
- 4.211 Our final decision is that we will specify the approach to cost allocation at the time of specifying an additional FFLAS class.
- 4.212 ABAA is the approach that must be applied when allocating costs and asset values to PQ FFLAS, ID FFLAS and ID-only FFLAS. However, other cost allocation methodologies may be appropriate for additional FFLAS classes. We will specify the approach when we specify an additional FFLAS class.
- 4.213 This will ensure consistency with the wider fibre-related regulatory work (eg, EOI guidelines for pricing unbundling), and issues identified by external experts during the development and implementation of the Part 6 regime.⁴⁹⁶ This approach would also allow us to consider issues such as whether sub-RABs or allocations of operating expenses need to be extended to include FFLAS product group level reporting.
- 4.214 We note that in specifying the rules for these additional FFLAS classes, we may prescribe a cost allocation methodology other than ABAA.

⁴⁹⁵ Refer to the regulatory framework chapter.

⁴⁹⁶ For example, see the discussion of pricing efficiency issues in Ingo Vogelsang and Martin Cave "Pricing under the new regulatory framework provided by Part 6 of the Telecommunications Act" (21 May 2019).

Potential future product groups

- 4.215 In future, there may be value in understanding the cost of a product group or groups.⁴⁹⁷ A product group is a group of regulated FFLAS that differ in configuration but bear essentially the same costs. The Commission may specify product groups under ID regulation for which regulated providers have to disclose costs. This may involve allocating shared costs between different FFLAS.
- 4.216 Product groups include individual “variants”, ie services that differ in configuration but bear essentially the same costs. For example, bitstream 2 and bitstream 3 services have substantively similar cost structures as they are delivered over the same network in the same way and would both be part of the same group.
- 4.217 Our focus on product groups (rather than more granular views of FFLAS) reflects our understanding that FFLAS product groups that are provided using common elements often have pricing differences that may reflect market demand factors, rather than a cost-plus pricing structure. By adopting a product group as a cost category, a greater proportion of costs will be directly attributable to each FFLAS product group.
- 4.218 We expect it would be complex for regulated providers to break costs down to more granular levels of detail, and the accuracy of such a service-costing exercise may be limited.
- 4.219 Importantly, there may be limited value in requiring cost allocation at a more granular level. Products within FFLAS product groups may face similar levels of (potential) competition and are more likely to be (reasonably) close substitutes from the end-user’s perspective. This will limit the scope for regulated providers to price strategically within a FFLAS product group, and hence limit the need for more granular information for this purpose.
- 4.220 We also understand that some costs have a clearer causal relationship with specific FFLAS product groups or geographical regions than others. For example, splitters and distribution fibre may be associated with specific end-users on a limited number of known services (eg, unbundled, bitstream), while other FFLAS costs or levels of aggregation may lack the same specificity in their causal relationship. For example, a specific duct may only support one FFLAS product group, but if pooled with other ducts in the same suburb would become part of a common (pooled) asset, since some of the other ducts support other regulated FFLAS.

⁴⁹⁷ For example, all GPON-based bitstream services would in one product group.

Final Decisions: Implementing the Regulations

- 4.221 Our final cost allocation decisions for giving effect to the Regulations are set out below.
- 4.221.1 For regulated providers subject to both PQ and ID regulation, operating costs or asset values that are directly attributable to PQ FFLAS, ID-only FFLAS or any additional FFLAS class specified by the Commission must be allocated to the respective FFLAS classes accordingly.
 - 4.221.2 For any specific shared operating costs or asset values, the same allocator types or proxies must be used to allocate costs to PQ FFLAS and ID-only FFLAS.

- 4.222 In light of submissions, and for the reasons explained below, we have revised our reasoning to allow for either a single step or two-step process.

Explanation for implementing reg 6 in the IMs

- 4.223 As set out in the regulatory framework chapter, the introduction of reg 6 required us to consider the relationship between the different steps of cost allocation, that is, the interaction between:
- 4.223.1 the way that Chorus' costs for both assets and operating expenses are allocated between FFLAS and services that are not regulated FFLAS; and
 - 4.223.2 how Chorus allocates these costs between different FFLAS classes (ie, PQ FFLAS, ID-only FFLAS and any additional FFLAS class).

- 4.224 This raised the following issues:

- 4.224.1 how a regulated provider should sequence its cost allocation to address both steps (for example, whether the process should be sequenced in separate steps, or whether both steps can be addressed in a single step); and
- 4.224.2 whether, and how, the values allocated to regulated FFLAS should be reconciled with those allocated to PQ FFLAS, ID-only FFLAS and any additional FFLAS classes.

Two-step process proposed under further consultation paper

- 4.225 In our further consultation paper, we considered whether we could carry out cost allocation between different FFLAS classes using the existing cost allocation methodology developed under the draft IM for allocating costs between regulated FFLAS and services that are not FFLAS.

- 4.226 In our further consultation reasons paper, we proposed additional prescription in the form of the two-step cost allocation process.
- 4.227 In particular, we considered that the cost allocation methodology developed under the draft IM for allocating costs between regulated FFLAS and services that are not regulated FFLAS was not sufficient for allocations between different classes of regulated FFLAS, for the following two reasons.
- 4.227.1 Certain costs that are directly attributable to regulated FFLAS are shared across different classes of regulated FFLAS. This means that an additional step is needed in the cost allocation process so that both attributes are recognised.
 - 4.227.2 The causal allocator that applies in one context may not apply in the other context. This means that how the allocators are applied becomes important; performing the allocation of costs in a way that loses the causal relationships may lead to different and illogical outcomes (as is illustrated in Table 4.2).

4.228 The proposed two-step process was as follows.⁴⁹⁸

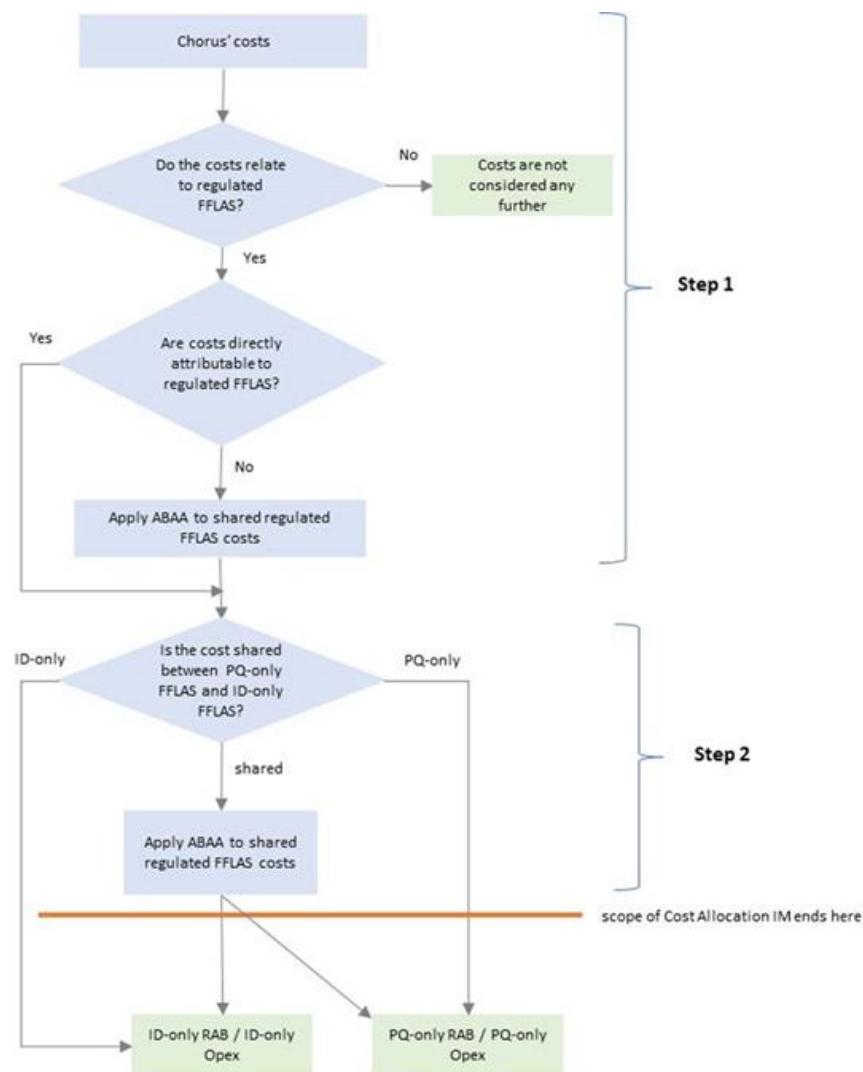
- 4.228.1 **Step 1:** regulated providers allocate shared costs between regulated FFLAS and services that are not regulated FFLAS; and
- 4.228.2 **Step 2:** regulated providers allocate costs between different classes of regulated FFLAS.

How the two-step process works

4.229 Figure 4.1 below is provided to show how the two-step process works.

⁴⁹⁸ Commerce Commission, Fibre input methodologies – Further consultation draft – Reasons paper (23 July 2020), paragraphs 3.134-3.136; 3.138-3.152; Figure 3.1 in p 68.

Figure 4.1 Flow chart demonstrating a two-step cost allocation process



Step 1: Allocation of costs between regulated FFLAS and services that are not regulated FFLAS.

Step 2: Allocation of costs between different classes of regulated FFLAS (eg, PQ FFLAS and ID-only FFLAS).

4.230 We considered this proposal to be beneficial in that it established a single reference point of allocation of shared costs to regulated FFLAS relative to other services. These benefits included the following.

4.230.1 Transparency regarding how efficiency gains are shared.

4.230.2 A common view of the costs that are allocated to regulated FFLAS. This acts as a safeguard to ensure allocations of costs between different classes of regulated FFLAS are based on a common view of the overall costs of regulated FFLAS. This helps both to avoid double recovery and to

future-proof the cost allocation IM for additional RABs (ie, in addition to the allocation between PQ and ID-only FFLAS).⁴⁹⁹

4.230.3 Providing support for future compliance by ensuring calculations are carried out in a structured manner.

4.231 In our further consultation paper we included worked counter examples that demonstrated the problems that could occur if cost allocation to give effect to the requirements of reg 6 was not carried out in a structured manner.⁵⁰⁰ These examples resulted in cost allocation that attributed minimal or disproportionately low levels of shared costs to one service, with a corresponding disproportionately high allocation to one or more other services and included:

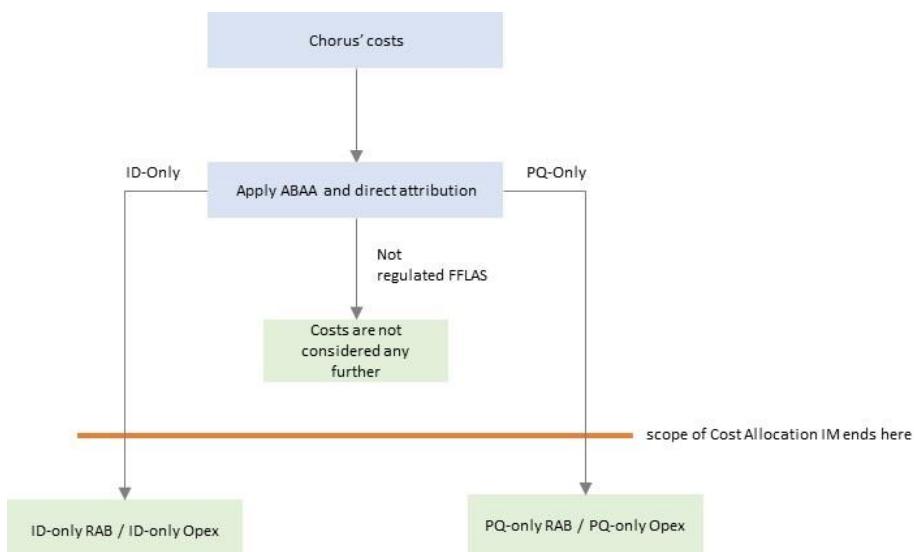
4.231.1 only using one allocator when each step of the cost allocation process needs its own allocator; and

4.231.2 not applying all cost allocators to all parts of a particular expense's cost allocation.

How the one-step cost allocation process works

4.232 Figure 4.2 demonstrates the one step process without prescription regarding the number of steps.

Figure 4.2 Flow chart demonstrating a one-step cost allocation process



⁴⁹⁹ For example, a ‘sub RAB’ may be required for an additional FFLAS class that is based on a layer of network functionality or a geographic subset of the regulated provider’s regulated FFLAS.

⁵⁰⁰ Commerce Commission, “Fibre input methodologies – Further consultation draft – Reasons paper” (23 July 2020), Table 3.2 on pages 69-70.

4.233 We have updated the worked example from our further consultation paper to include a one-step allocation process. Table 4.2 below is a worked example showing the differences between the two approaches for allocation.

Table 4.2 Approaches for allocation and worked example

Example:

Assume a central office building has shared costs of \$100 and is located in a PQ area. The allocator type and best proxy allocator for the \$100 shared cost is floor area. 50% of the floor area is used for services that are not regulated FFLAS. In this particular case, this 50% of the floor area is used to store a rack containing a content server (eg for Netflix, YouTube etc) (non-FFLAS rack). The remaining 50% of the floor area is for a rack used for regulated FFLAS. This rack is shared between PQ and ID-only connections (FFLAS rack). Therefore the ratio of regulated FFLAS to services that are not regulated FFLAS is 50:50. Relying on information from the specified fibre area (SFA) data set, 49 connections served by the central office are ID-only FFLAS and 49 connections served by the central office are PQ FFLAS. Therefore, the ratio of PQ FFLAS to ID-only FFLAS is 50:50. In addition, one non-FFLAS backhaul connection is linked to the non-FFLAS rack and one non-FFLAS backhaul connection is linked to the FFLAS rack.

Two-Step process

Application to cost allocation: allocate in sequence (Step 1 then Step 2)

Step 1:

- Identify all Chorus' costs
- Identify those costs related to regulated FFLAS
- Identify directly attributable vs shared costs
- Apply ABAA to shared costs.

Allocating costs on a regulated FFLAS vs services that are not regulated FFLAS basis, the allocation would be \$50 to regulated FFLAS and \$50 to services that are not regulated FFLAS. This aligns with how the space is used in the central office (ie, the 50:50 ratio as set out in the previous box).

Step 2:

- For all regulated FFLAS costs, identify whether these are shared or are specific to ID-only or PQ
- Apply ABAA all to shared costs and directly attributable costs.
- Now we add in PQ/ID-only

Applying the PQ FFLAS:ID-only FFLAS ratio as step two, you would then split the \$50 of regulated FFLAS on a 50:50 basis, so that \$25 would be allocated to ID-only connections and \$25 is allocated to the PQ connections.

This results in an allocation that totals \$100 (\$50 to services that are not regulated FFLAS; \$25 to ID-only FFLAS; and \$25 to PQ FFLAS) and where the amounts allocated to regulated FFLAS are proportionate to those services' use of floor area, and are subsequently split in proportion to how the rack is used.

One-Step process**Application to cost allocation: allocate in one step with causal allocator types applied end to end**

- Identify all Chorus' costs
- Identify directly attributable vs shared costs (optional)
- Identify the cost allocator(s) for each (shared) cost to allocate to PQ FFLAS, ID-only FFLAS or other
- Multiply the cost allocators to determine ABAA allocation ratios
- Apply ABAA allocation ratios to (shared) costs.

The ratio of regulated FFLAS to services that are not regulated FFLAS of 50:50 is combined with the ratio of PQ FFLAS to ID-only FFLAS of 50:50 to produce the following ratios for allocating (shared) costs:

$$\text{PQ FFLAS} = 0.5 \times 0.5 = 0.25$$

$$\text{ID-only FFLAS} = 0.5 \times 0.5 = 0.25$$

Services that are not regulated FFLAS = 0.5 (residual)

These ratios are then applied to the central office building's shared costs of \$100 to yield a split of \$50 to services that are not regulated FFLAS; \$25 to ID-only FFLAS; and \$25 to PQ FFLAS. This results in an allocation that totals \$100.

Counter application 1: Allocate in a single step with only one allocator

Allocate total shared costs using connection numbers

The allocation would be \$49 to PQ connections, \$49 to ID-only connections and \$2 to services that are not regulated FFLAS connections. This reflects the ratios of the 100 connections in the central office and results in \$98 being allocated to regulated FFLAS. The costs allocated to services that are not regulated FFLAS are disproportionately small relative to the floor area used.

This example illustrates the importance of considering the causal factor for both the regulated FFLAS vs services that are not regulated FFLAS and PQ vs ID-only FFLAS.

Counter application 2: Allocators not fully applied end to end under reverse sequencing of cost allocation**Step 1:**

Allocate total shared costs between PQ and ID-only areas

The allocation would be \$50 to services provided in PQ areas and \$50 to services provided in ID-only areas based on the 50:50 ratio of PQ to ID-only connections.

Step 2:

Allocate the PQ and ID-only area costs between regulated FFLAS and services that are not regulated FFLAS.

As the central office is in a PQ area, the \$50 cost allocated to PQ would then be split between both the regulated FFLAS connections (\$25) and the services that are not regulated FFLAS (\$25) based on floor area being evenly split. The \$50 allocated to ID-only is not allocated further since the services that are not regulated FFLAS service (rack space) does not use floor space located in the ID-only.

Hence PQ-regulated FFLAS falls to \$25 which is half of the \$50 allocated to ID-only despite both services taking up equal amounts on space on a shared rack. Services that are not regulated FFLAS are allocated less cost than their proportionate share of the floor area.

This example illustrates the importance of having a structured approach to cost allocation which fully factors both causal factors into the calculations. In this counter example, the cost allocators are not applied end-to-end and this distorts the outcome.

Summary of results				
Allocation of shared cost to:	Allocate in sequence (two steps each with their own allocator)	Allocate in sequence (one step with end to end application of the allocators)	One step allocation (one allocator)	Allocators not fully applied end to end under reverse sequencing
PQ FFLAS	\$25	\$25	\$49	\$25
ID-only FFLAS	\$25	\$25	\$49	\$50
Services that are not regulated FFLAS	\$50	\$50	\$2	\$25

Why the approach to allocation between different FFLAS classes is significant

- 4.234 The manner in which cost allocation is carried out can produce different outcomes. In the absence of a prescribed approach for cost allocation involving different levels of allocations, there would be an opportunity for a regulated provider to optimise its approach to cost allocation. Two worked examples that illustrate this can be found in Table 4.2.
- 4.235 For example, by changing how the cost allocators are factored into the calculations, the cost allocation outcome may change from:
- 4.235.1 a material share of costs being allocated to each service (using the relevant asset); to
 - 4.235.2 the same services being allocated either 100% or zero cost.
- 4.236 We consider that an outcome where certain services (eg, a service that is not regulated FFLAS, such as co-location for other services, which uses valuable space) carry zero or only limited shared costs would not promote the purpose of the Act under s 162(c) of regulated providers allowing end-users to share the benefits of efficiency gains in the supply of FFLAS.
- 4.237 Another advantage of a structured approach is that it helps future compliance by ensuring calculations are carried out in a way that is easier to follow.

Why having a single reference point for costs allocated to regulated FFLAS matters and gives effect to the Part 6 purpose

- 4.238 We also consider there are benefits in requiring regulated providers to identify which costs are shared between services that are regulated FFLAS and services that

are not regulated FFLAS. This establishes a single reference point regarding how efficiency gains are shared at this level. This approach:

- 4.238.1 supports transparency of the outcome of how efficiency gains are shared; and
 - 4.238.2 underpins our approach to reg 5 and reg 6 by acting as a safeguard to ensure that all allocations of costs between different classes of regulated FFLAS are based on a common view of the overall costs for regulated FFLAS.
- 4.239 The purpose of ID regulation is to ensure that sufficient information is readily available to interested persons to allow an assessment of whether the purpose of Part 6 set out in s 162 is being met.⁵⁰¹ Of particular relevance for present purposes are s 162(c), allowing end-users to share the benefits of efficiency gains in the supply of FFLAS; and s 162(d), that regulated providers are limited in their ability to extract excessive profits.
- 4.240 As we explained in our emerging views paper and draft decision, cost efficiencies from providing multiple services are relevant to the long-term benefit of FFLAS end-users, as recognised in the s 162 purpose. Specifically, the way costs are allocated between different services has a bearing on how efficiency gains arising from supplying more than one service are shared with end-users of regulated services over time.^{502, 503}
- 4.241 Without rules that prevent cost-shifting or misallocation, regulated firms may be able to over-allocate costs to the regulated service, and in the case of a regulated provider that is subject to PQ regulation to PQ FFLAS, in particular. This could lead to cross-subsidies for an unregulated service (which could be contrary to the promotion of workable competition, where relevant, as specified in s 166(2)(b)) or the regulated firm extracting excess profits (contrary to s 162(d)).
- 4.242 Information that provides visibility of each key step in the chain of cost allocation that will occur in PQ and ID is important to ensure the Commission and interested persons can assess whether efficiency gains are shared with end-users of regulated FFLAS.
- 4.243 The allocation of efficiency gains will typically occur earlier on in the cost allocation process. Having information about this intermediate step (step 2 in Figure 4.1) is

⁵⁰¹ Telecommunications Act 2001, s 186.

⁵⁰² Commerce Commission “Fibre regulation emerging views: Technical Paper” (21 May 2019), paragraphs 261-262.

⁵⁰³ Commerce Commission “Fibre input methodologies – Draft decision paper” (19 November 2019), para 3.354.1.

important for assessing whether, and where, the efficiency gains have been shared. The dollar allocations for costs shared between different FFLAS provide insight into the appropriateness of that allocation ratio (step 2 in Figure 4.1), but on their own do not demonstrate whether any efficiency gains have been shared with end-users.

Submissions on the two-step process

4.244 We received several submissions on the two-step process we had proposed in our further consultation paper, as summarised below.

- 4.244.1 Chorus raised several concerns about our two-step proposal and proposed an alternative approach. In order to assess its proposal more fully, we requested that Chorus provide a supplementary submission.⁵⁰⁴ We invited other interested parties to cross-submit on Chorus's supplementary submission.
- 4.244.2 Enable and Ultrafast's joint submission supported our proposed two-step cost allocation approach and submitted that it improved transparency.⁵⁰⁵
- 4.244.3 Vocus submitted that care will be needed to ensure that no element of the ID-only fibre businesses' costs or losses are incorporated into the PQ-regulated fibre business or financial loss asset.⁵⁰⁶
- 4.244.4 Chorus submitted the second step in our proposed two-step approach was unnecessary and would only add further time, cost and complexity into the regime. Chorus submitted that a one-step end-to-end process can achieve the same outcome as a two-step process.⁵⁰⁷ In making this submission Chorus' described an approach that used multiple 'allocators' at 'each step'.⁵⁰⁸

4.245 We agree that, Chorus' approach may lead to the same value of costs allocated to PQ FFLAS, ID-only FFLAS, and the same overall cost of regulated FFLAS.

4.246 However, we note that the following.

⁵⁰⁴ Chorus "Supplementary submission on the Commerce Commission's fibre input methodologies – further consultation draft reasons paper" (28 August 2020).

⁵⁰⁵ Enable and Ultrafast Fibre "Submission on further consultation draft reasons paper" (13 August 2020), paragraph 8.1.

⁵⁰⁶ Vocus "Further consultation: Fibre Input Methodologies Determination 2020: submission to the Commerce Commission" (13 August 2020), paragraph 7.

⁵⁰⁷ Chorus submission on "Fibre input methodologies – further consultation draft reasons paper" (13 August 2020), paragraph 54

⁵⁰⁸ Chorus, Chorus submission on "Fibre input methodologies – further consultation draft reasons paper" (13 August 2020), paragraphs 65-66

- 4.246.1 Chorus' approach of using multiple allocators in a single step is different to a single-step allocation process that only uses one allocator type. Chorus' approach involved the causal factors relevant to both steps of a two-step process being combined into a single step.
- 4.246.2 A single-step end-to-end cost allocation process can achieve the same outcome as a two-step process, when ABAA is the cost allocation methodology that is applied for both steps. This can be the case for allocating costs between PQ and ID-only FFLAS. However, it may not be the case if another cost allocation approach is used to allocate costs between additional FFLAS classes.
- 4.246.3 Chorus' approach applies the same cost allocator types for the same shared cost when calculating the allocations to PQ and to ID-only. We consider that consistency in allocator types is important for avoiding the risk of double recovery and inaccuracy that could occur if one allocator type was used for calculating the share of a cost allocated to PQ FFLAS and another allocator type was used for cost allocation to ID-only FFLAS.⁵⁰⁹

Argument that two-step approach would increase compliance costs

- 4.247 In its supplementary submission, Chorus restated that the two-step cost allocation process would increase its compliance costs compared to its preferred approach. Chorus submitted:⁵¹⁰

We agree that it is necessary to allocate costs between FFLAS classes but are concerned with the potential modelling implications of the proposed two-step approach, driving unnecessary costs and complexity that are passed on to consumers in return for little or no benefit, and puts timeframes at risk. Accordingly, we propose drafting for a single step allocation approach, which drives the same allocation outcomes. Overall, we consider that it is a simpler way of achieving the Commission's objective of a transparent approach to cost allocation.

- 4.248 Chorus had also previously submitted that a single-step cost allocation approach provided flexibility and would allow it to allocate costs in a way that takes account of the geographic aspects of allocation between PQ and ID-only FFLAS (that is, the fact that reg 6 exempts Chorus' FFLAS from PQ regulation in geographical areas where

⁵⁰⁹ For example, if a shared cost for fault repairs, was allocated to PQ based on faults reported, and to ID-only onsite visits. In this case the two allocations would not add up to the total shared costs, if say ID-only areas required on average more site visits per 1000 faults than PQ areas.

⁵¹⁰ Chorus "Supplementary submission on Fibre IMs further consultation" (28 August 2020), paragraph 6.

another regulated provider has installed a fibre network under the UFB initiative), as well as those aspects driven by end-user connection numbers.⁵¹¹

4.249 2degrees did not support Chorus' proposed single-step approach and submitted:⁵¹²

Chorus' supplementary submission has not provided an explanation or evidence to support this position. We are not persuaded that the two-step process should be problematic, or that it is of little value ...

4.250 We consider that if an alternative cost allocation approach to the two-step process can achieve the same or equivalent outcomes to those that we proposed in our further consultation paper (as outlined at paragraphs 4.2307-4.228 above) and may reduce the compliance costs for regulated providers, then such an approach should also be allowed under the IM.

4.251 We also note that as Chorus is required to meet modelling deadlines for PQ over the coming year, permitting an approach that may reduce its effort would help to ensure that these deadlines are met.

4.252 We received no cross-submissions on Chorus' supplementary submission.

Our final decision does not prescribe further structure in the cost allocation process

4.253 After considering submissions, our final decision does not prescribe further structure in the cost allocation process (eg, a single or two-step approach) that a regulated provider subject to both PQ and ID regulation must adopt.

4.254 We consider that not prescribing an approach provides flexibility for the future (eg, if Chorus were to implement new financial systems, or another fibre provider were to become subject to PQ regulation and had financial systems that favoured adopting a process with a specific structure).

4.255 However, we consider that a single step end-to-end process must be applied in a structured manner.

4.256 In particular, the value of operating costs or asset values allocated to regulated FFLAS must equal the value of operating costs or asset values allocated to PQ FFLAS and ID-only FFLAS in order to establish a common view of the overall cost of regulated FFLAS. This common view will help to provide:

4.256.1 transparency regarding how efficiency gains are shared; and

⁵¹¹ Chorus, Chorus submission on “Fibre input methodologies – further consultation draft reasons paper” (13 August 2020), paragraph 59

⁵¹² 2degrees “Cross-submission on further consultation” (3 September 2020), page 3.

4.256.2 a safeguard to ensure allocations of costs between different classes of regulated FFLAS are based on a common view of the overall costs of regulated FFLAS. This helps both to avoid double recovery and to future proof the cost allocation IM for additional RABs where the approach to cost allocation may differ from the ABAA-based PQ RAB and ID-only RAB split. Cost allocators type(s) or proxies applied to any given shared cost are applied consistently when allocating between PQ FFLAS, ID-only FFLAS and any additional FFLAS class subject to ABAA. This avoids the risk of double recovery or errors described earlier. It should also ensure that the resulting overall costs for regulated FFLAS are also consistent with the ABAA approach.

4.257 We have added a new safeguard into our IMs. If the Commission specifies an additional FFLAS class, any operating costs or asset values that are not directly attributable to that additional FFLAS class must be allocated such that the total amount of operating costs or asset values allocated to each FFLAS class does not exceed the total operating costs or total asset values attributable to:

4.257.1 PQ FFLAS and ID-only FFLAS combined (for regulated providers subject to both ID and ID regulation); and

4.257.2 ID FFLAS (for regulated providers subject to ID regulation only).

4.258 The draft IM already included safeguards and we have retained these safeguards, as follows.

4.258.1 ABAA must be applied in a consistent manner. We consider that consistency requires that for any given shared cost the same allocator types are used to allocate costs to both PQ and ID-only.

4.258.2 Cost allocators must be based on causality or suitable proxies. We consider that in applying a single step approach under ABAA:

4.258.2.1 any costs that are allocated to PQ FFLAS or ID-only FFLAS will by definition also be attributable to regulated FFLAS; and

4.258.2.2 any cost which is not attributable to either PQ or ID-only would not be attributable to regulated FFLAS.

Final Decision: means of limiting double recovery

4.259 Our final decision is that regulated providers must not double recover the costs shared across services that are regulated under both Part 4 of the Commerce Act and Part 6 of the Act.⁵¹³

Rationale for our final decision

4.260 Our final decision retains the position presented in our draft reasons paper.

4.261 In submissions on the draft reasons paper, several parties submitted that further consideration should be given to the prevention or mitigation of double recovery between the following services:

4.261.1 copper services and regulated FFLAS, in the case of Chorus; and

4.261.2 electricity distribution services (regulated under Part 4 of the Commerce Act) and regulated FFLAS, in the case of the other regulated providers.

4.262 Chorus agreed that regulated suppliers must not double recover costs shared across services regulated under Part 4 and Part 6.⁵¹⁴ Chorus has previously submitted that while it is important to avoid double recovery that can arise because of the approach taken to cost allocation, it is equally important to ensure that cost allocation does not exclude any costs and result in under-recovery.⁵¹⁵

4.263 Several of the submissions on the draft reasons paper focused on double recovery involving copper services covered by the FPP. These include submissions by Spark, Vocus, Vodafone, and 2degrees.^{516 517 518 519}

4.264 Given that these submissions were generally focused on costs for services covered by the FPP determination being double recovered under the financial loss asset, these submissions will be considered in our final reasons paper on the financial loss

⁵¹³ This provision will only have effect after the past loss period as the Commerce Commission and not the regulated providers will perform the cost allocation calculations for the past loss period.

⁵¹⁴ Chorus "Submission on Fibre Input Methodologies – Draft decision 30 January 2020" 30 January 2020, paragraph 184.2.

⁵¹⁵ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), page 53.

⁵¹⁶ Spark "Submission on Fibre Input Methodologies – Draft decision 30 January 2020" 30 January 2020, page 1.

⁵¹⁷ Vocus "Submission on Fibre Input Methodologies – Draft decision 30 January 2020" 30 January 2020, paragraphs 11 and 27,

⁵¹⁸ Vodafone "Submission on Fibre Input Methodologies – Draft decision 30 January 2020" 30 January 2020, page 2.

⁵¹⁹ 2degrees "Submission on Fibre Input Methodologies – Draft decision 30 January 2020" 30 January 2020, page 12.

asset. In that paper, we will also include our response to submissions received regarding the relationship between the models used for calculating the financial loss asset.

Addressing double recovery between regulated FFLAS and services that are not regulated FFLAS

- 4.265 We consider that our final decision for allocation between regulated FFLAS and services that are not regulated FFLAS, as well as for PQ and ID, is the appropriate approach in order to mitigate the risk of double or under-recovery, after implementation date, which will also be after the expiry of the FPP determinations.
- 4.266 Aspects of our approach that we consider should specifically mitigate the risk of double recovery include the following.
 - 4.266.1 That ABAA assigns shared costs in proportion to their causal relationship with the particular service;
 - 4.266.2 The use of a cap on the allocation of shared costs between regulated FFLAS and services that are not regulated FFLAS, based on the unavoidable costs that would be incurred if the services that are not regulated FFLAS were no longer supplied (noting that recovery of excessive profits can constitute a form of double recovery). From paragraph 4.97 above we explain why the use of a cap on shared costs limits regulated providers' ability to extract excessive profits;
 - 4.266.3 Specific requirements to prevent double recovery involving Part 4, as discussed below (paragraphs 4.269 to 4.271 below); and
 - 4.266.4 Several requirements and related guidance to ensure that regulated providers apply the rules consistently (eg, the requirement to justify the choice of cost allocators). This is intended to minimise gaming, which can lead to double recovery of costs. An example of gaming to double recover costs would be if a regulated provider were to change the choice of allocators half way through an asset's life to ensure that over the longer term, regulated FFLAS were assigned a higher share of depreciation than would have occurred had either allocator been used for the entire life of the asset.
- 4.267 We consider it is impractical to fully ensure and demonstrate that there has been no double or under-recovery of costs after the implementation date particularly for Chorus. The modelling required to ensure that there had been no double or under-recovery would be comprehensive and very costly, as it would require modelling of the cost recovery for each of Chorus' many different services. In addition, after the implementation date, there will not be a regulated, enforced, cost model and pricing

for many of Chorus' services that are not FFLAS (for example, copper services). This means that the information required to assess that costs are attributable to copper services (in order to determine whether there has been any under or over recovery of costs) will not necessarily be available.

- 4.268 We consider our approach of ABAA is a cost-effective way of achieving an acceptable level of risk and has benefit of not incurring the substantial costs of modelling as outlined above.

Addressing double recovery between FFLAS and services regulated under Part 4

- 4.269 We consider that one specific area of concern for double recovery involving services that are not regulated FFLAS is where costs are shared across multiple different regulated sectors. For example, the use of different cost allocation approaches in each sector could mean there was a risk of regulated providers being able to over-recover costs.
- 4.270 To address this risk, our final decision is to make clear that double recovery is not permitted between FFLAS regulated under Part 6 and services regulated under Part 4 (several firms that are related to LFCs other than Chorus are regulated under Part 4).
- 4.271 The final requirement is worded to cover both cost allocation and related party transactions. We consider that this helps to promote the purpose of Part 6. In particular, we consider it will ensure that regulated providers are limited in their ability to extract excessive profits (s 162(d)) and ensure that efficiency gains from the use of shared assets are shared with FFLAS end-users (s 162(c)).

Final Decisions: cost allocation rules specific to ID or PQ regulation

- 4.272 Our final decisions are that:

- 4.272.1 under ID regulation, regulated providers must:

- 4.272.1.1 update the measures and statistics used as allocator values at least once every 12 months; and
- 4.272.1.2 undertake a review of the choice of allocator types at least once every 18 months.

- 4.272.2 When establishing the initial allocated RAB, a regulated provider subject to ID regulation must apply the same cost allocators types as those used to determine the initial value of its financial loss asset.⁵²⁰
- 4.272.3 A regulated provider that is subject to both PQ and ID regulation must apply the same approach to cost allocation used for the PQ path as determined under PQ regulation when subsequently disclosing information under ID regulation, unless it is justifiable and demonstrably reasonable to use an alternative approach.

Rationale for final decisions

- 4.273 PQ and ID regulation each have a different focus. Many of the cost allocation rules for regulated providers that are also subject to PQ regulation build on those that apply to regulated providers subject only to PQ regulation. However, there are some differences specifically tailored to regulated providers subject to ID regulation, and those also subject to PQ regulation.
- 4.274 The focus of PQ regulation is to set a forward-looking PQ path, using forecast information. By contrast, ID regulation will generally use historical information on a regulated provider's actual performance.⁵²¹ ID regulation must address issues specific to the financial loss period which, by virtue of being historic, do not apply to PQ regulation.⁵²² Longer-term, the ID regime may involve reporting on the actual outcomes relative to those that were forecast under the PQ proposals.
- 4.275 We also note that any cost allocators that we approve as part of a PQ determination will have to be applied in subsequent PQ regulation and ID reporting.
- 4.276 A key component of regulation under Part 6 is establishing an initial RAB (including the financial loss asset) for each regulated provider. The asset valuation IM and the cost allocation IM are applied together to "produce" the initial RAB.⁵²³

Review of allocator values and types selected by regulated providers for ID regulation

- 4.277 Our final decision is that for ID regulation, regulated providers must update the measures and statistics (referred to as "allocator values") used for allocation at least

⁵²⁰ We note that clause 2.1.3(3) of the IMs specifies that "for the purposes of establishing the initial RAB, a regulated provider must apply the same allocator types as those used to determine the financial losses in accordance with Schedule B". The "allocator types" will be set out in a separate schedule in the IMs (Schedule B) as part of the determination accompanying our separate reasons paper on the financial loss asset published in November 2020.

⁵²¹ ID can however also include forward-looking information, such as asset management plans.

⁵²² As noted above, the financial loss asset will be addressed in a separate paper to be published in November 2020.

⁵²³ For a discussion of the transitional provisions for establishing the initial RAB, refer to paragraph 3.135 of the asset valuation chapter.

once every 12 months and review the choice of allocator types at least once every 18 months.

Review of measures and statistics (allocator values) under ID regulation

- 4.278 In reviewing the measures and statistics that regulated providers use in cost allocation, we will draw on the Part 4 definition of a “causal relationship”. We will apply a 12-month (rather than an 18-month) period for review of measures and statistics used as the allocator values for allocation.
- 4.279 Measures and statistics refer to the actual values measured or estimated at a point in time and are referred to as “allocator values” in our IM).
- 4.280 We consider that the measures and statistics used in ID disclosures should be updated at least annually to reflect the dynamic nature of the telecommunications sector, particularly the transition from copper services to regulated FFLAS or the introduction of new services. The use of annual reviews is consistent with the regulated providers’ other reporting obligations such as under current ID and for statutory reporting.
- 4.281 Chorus supported the requirement of an annual review of measures and statistics. Chorus considered that this would help “ensure that the cost allocations are as accurate as possible during the copper to fibre migration.”⁵²⁴ This requirement only applies to the annual roll forward of the RABs under ID as it relates to the reporting of historic information and the need to reconsider the appropriateness of allocators for changes over time.
- 4.282 This requirement is not applicable for PQ regulation as all forecasts relating to changes in sharing will be made concurrently.

Review of allocator types

- 4.283 For review of the choice of allocator types, we intend to use the same rule as in the Part 4 regulation, which requires an 18-month period for review of the choice of allocators.
- 4.284 The choice of allocator refers to the allocator that is measured and in our IM these are referred to as “allocator types”. For example, if the allocator type is end-users, then the allocator values may include the statistics of 100,000 end-users subscribed to regulated FFLAS and 50,000 end-users subscribed to services that are not regulated FFLAS at a specific date.

⁵²⁴ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraph 52.

Choice of allocators for the initial RAB for ID

- 4.285 For the regulated providers subject to ID, establishing the initial allocated RAB is a one-off exercise.
- 4.286 Our decision is that regulated providers will be required to apply the same allocator types for establishing the initial allocated RAB as those used for calculating the financial loss asset, for core fibre assets that are common to both calculations.
- 4.287 Spark submitted that additional prescription may be needed in establishing the initial RAB and provided an example regarding cost allocation involving assets used to provide copper services.⁵²⁵
- 4.288 We agree that cost allocation will be of central importance when establishing the initial allocated RAB and that additional prescription regarding cost allocators is likely to provide increased certainty. The size and potential time and cost required to establish the initial allocated RAB also favours the use of methods that simplify this work.
- 4.289 Our decision described at paragraph 4.286 above will involve regulated providers applying many of the cost allocators used for the financial loss asset in order to establish the initial allocated RAB. These allocators are relevant as the implementation date is the day after the end point of the financial loss period (ie, the end point of the financial loss period is the opening point for the initial RAB).
- 4.290 We note that clause 2.1.3(3) of the IMs specifies that “for the purposes of establishing an initial RAB, a regulated provider must apply the same allocator types as those used to determine the financial losses in accordance with Schedule B”. The “allocator types” will be specified in a separate schedule in the IMs (Schedule B) as part of our determination accompanying our separate reasons paper on the financial loss asset published in November 2020.
- 4.291 Our approach has several benefits. First, it will allow the calculation of the initial allocated RAB to lever off our work scrutinising cost allocator choices for the financial loss asset. We consider that this should help minimise the risks of information asymmetry leading to gaming and over valuation of the initial allocated RAB. This addresses some of the concerns raised by submitters.
- 4.292 Second, this decision will promote certainty and reduce compliance costs in calculating the initial allocated RAB.
- 4.293 The regulated providers will need to use new measures and statistics or extend the application of existing measures and statistics for any differences between the

⁵²⁵ Spark "Fibre regulation emerging views: technical paper" (16 July 2019), Attachment C page 18 -19.

financial loss asset and initial RAB calculations. For example, that the financial loss asset only relates to FFLAS under the UFB initiative, while the initial RABs extends to all regulated FFLAS, ie, including FFLAS that were not part of the UFB initiative.

PQ forecasts

- 4.294 For future PQ proposals, there is likely to be uncertainty regarding the total expenditure requirement. In relation to cost allocation, there will be uncertainty in relation to forecast total demand and the forecast demand for regulated FFLAS and for services that are not regulated FFLAS. Total demand and how demand for different regulated FFLAS evolves over time are likely to differ from forecast and actual uptake of the varying services.
- 4.295 The inherent uncertainty involved in PQ forecasts means there will be significant uncertainty regarding cost allocation. This includes attempting to predict changes in the level of sharing of costs over time across different services. For example, when dealing with forecasts for new services or the transition of end-users between different technologies, forecasts cannot always be readily extrapolated from current trends.
- 4.296 Regulated providers are likely to have incentives to increase profits by inflating forecasts of uptake, usage, or other benefits of expenditure for regulated FFLAS and to downplay the benefits to services that are not regulated FFLAS.
- 4.297 This means overestimating the metrics used to allocate the forecast expenditure or the benefits to regulated FFLAS could result in the regulated provider potentially gaining a higher revenue cap during the relevant regulatory control period. This could result in over-recovery of costs during that period, contrary to the purposes set out in s 162, and specifically s 162(d).
- 4.298 Systematically over-forecasting the expenditure that is to be allocated to FFLAS might also have implications for the competitive position of both regulated FFLAS and services that are not regulated FFLAS in a way that is not consistent with the competition objective described in s 166(2)(b). For example, systematic over-forecasting might allow regulated providers to price services that are not regulated FFLAS at (close to) incremental cost. This in turn might provide the regulated providers with an unfair advantage relative to competitors in the relevant markets that cannot benefit from the ability to recover the costs of any shared assets through the regulated FFLAS.
- 4.299 Forecasting of expenditure that underestimates the proportion of costs attributable to regulated FFLAS could result in the under-recovery of costs. This would be inconsistent with the principle of FCM and could result in under-investment in services, to the detriment of end-users.

- 4.300 These examples demonstrate the importance of promoting robust forecasts in PQ with respect to the level of sharing of forecast expenditure for each year covered by the forecasts. We consider that robust forecasts will promote outcomes consistent with those produced in workably competitive markets. Regulated providers will have incentives to innovate and invest, consistent with s 162(a), and will also ensure that they are limited in their ability to extract excessive profits, consistent with s 162(d).
- 4.301 This may also provide more robust indications of the level of sharing of assets over the forecast period. For example, if expected uptake of all services is driven by economic growth, having consistent assumptions regarding the level of economic growth for all forecasts should reduce variance in results and lead to a more stable estimate of the relative level of sharing. By comparison, having different assumptions regarding the level of economic growth, is likely to result in the actual relative level of sharing change under any degree of economic growth.
- 4.302 To help address the issues outlined above, forecasts of expenditure sharing should be based on robust data and assumptions that are subject to review by the Commission as part of the PQ review process. At a high-level, we consider that this review process should form part of the overall PQ framework for ensuring that forecasts of demand, quality requirements, and expenditure are robust.
- 4.303 We also expect that cost allocation will be applied consistently between PQ and ID regulation. Having a consistent cost allocation approach to PQ regulation and assets added to the allocated RAB should help promote consistency between the allocated value of capital additions approved and the eventual allocated value of those assets added to the allocated RAB. This is because a consistent approach will remove some sources of potential variance, and ensure that the benefits of the PQ review of the cost allocation practices flow through to ID.
- 4.304 For the reasons outlined above, our final decision requires that the cost allocation practices that we accepted (as proposed by Chorus) or which we applied in making our PQ determination will be applied when the relevant expenditure is reported under ID, unless there is a justifiable reason to use alternative allocators.
- 4.305 In our view, this consistency will also promote transparency as it will assist interested persons compare PQ forecasts to actual data on a like-for-like basis, which will assist in improving later forecasting.

Review of cost sharing assumptions and documentation

- 4.306 Our final decision is that the cost allocation practices reviewed as part of the PQ review process will later be applied to ID by those regulated providers subject to PQ regulation.

4.307 We anticipate that conducting these reviews as part of the PQ review process, rather than via a separate process under ID (for example requiring regulated providers to provide prepare a cost allocation manual for review by the Commission under ID), should avoid duplication and minimise costs for regulated providers.

4.308 Axiom, submitting on behalf of Spark, supported the requirement for a review:⁵²⁶

By far the most important additional step would be to include in the IM a requirement for businesses to prepare something akin to a 'cost allocation statement' (CAS). In broad terms, a CAS would describe how a regulated provider was going to allocate common costs between FFLAS and other services.

4.309 We consider that our final decision to review cost sharing assumptions and documentation is appropriate. Information received via the s 98 disclosures, current fibre ID and in published annual reports suggests that the need to carry out this review is greatest in the case of Chorus, given it is the only regulated provider with a significant level of internal cost sharing.^{527,528}

4.310 The level of cost sharing for regulated providers other than Chorus (ie, those subject to ID regulation only) is considerably less. At this stage, we do not consider there is a need for an IM requiring them to prepare cost allocation documents for our review.

4.311 The approach to forecasting in general, for documentation on cost allocation for the PQ forecasts and the review of these forecasts will be addressed in the future PQ determinations. As such, we have not expanded on these aspects of forecasting in this document.

Final decision: exclusion of Court or other statutorily imposed penalties from operating costs

4.312 Under the cost allocation IM, Court or other statutorily imposed penalties will be explicitly excluded from operating costs that a regulated provider incurs in providing the regulated FFLAS.

Rationale for our final decision

4.313 An issue that has been raised is that pecuniary penalties and fines should be explicitly excluded from operating costs for regulated FFLAS. For example, one

⁵²⁶ Axiom Economics "Fibre regulation emerging views" (July 2019), page 13.

⁵²⁷ This excludes use of services shared with related parties that are covered by related party transactions for which we have proposed separate requirements relating to no double recovery between Part 4 and Part 6 in this IM.

⁵²⁸ Chorus "Submission in response to the Commerce Commission's invitation to comment on its proposed approach to the new regulation framework for fibre dated 9 November 2018" (21 December 2019), paragraphs 187-188.

submitter highlighted that the Commission had proposed to take this approach for amendments to Part 4 IMs and considered that a consistent approach should be taken for fibre IMs under Part 6 of the Act.⁵²⁹

2degrees supports exclusion of certain expenses from operating expenditure including “Court or other statutorily imposed penalties ... that a regulated provider incurs in providing the regulated FFLAS”.⁵³⁰

- 4.314 We agree we should take a consistent approach to the regulation of FFLAS under Part 6 to that taken for Transpower under Part 4.⁵³¹ The rationale for excluding such penalties and fines for Part 4 is that it would be a perverse outcome if pecuniary penalties and fines – which are intended to penalise providers for contravening standards that apply to them – could be passed through to end-users. This rationale applies equally to the regulation of FFLAS.
- 4.315 Our final decision regarding the definition of “operating costs” is to explicitly exclude “payment of any pecuniary penalties”. The term “pecuniary penalties” is defined in the determination as follows:⁵³²
- fines or penalties imposed -
- (a) by a court; or
 - (b) by any other body with a statutory power to impose such fines or penalties.

⁵²⁹ 2degrees "Submission on Commerce Commission Fibre Regulation Emerging Views Paper" (16 July 2019), page 9.

⁵³⁰ 2degrees "Submission on Fibre Input Methodologies – Draft decision 30 January 2020" 30 January 2020 page 7-10.

⁵³¹ The Commission published the amended Transpower IM Determination and Reasons paper on 28 August 2019 which include a specific exclusion of pecuniary penalties in the definition of operating costs: https://comcom.govt.nz/__data/assets/pdf_file/0022/170149/Amendments-to-input-methodologies-for-Transpower-New-Zealand-Limited-Reasons-paper-28-August-2019.pdf. The Commission has taken the same approach for EDBs, Electricity Distribution Services Input Methodologies Determination 2012, amended as of 20 May 2020.

⁵³² We propose adopting the same definition as that used in the Transpower IM Determination for the Part 6 IM Determination.

Chapter 5 Final decisions: Quality IM

Table 5.1 Summary of final decisions on the quality IM

Issue	Final decision
Level of prescription	The quality IM sets out an exhaustive list of quality dimensions, as well as a non-exhaustive list of example quality metrics.
Quality dimensions in the quality IM	The quality IM specifies fibre lifecycle dimensions (ordering, provisioning, switching, faults, availability and performance) and an overarching dimension of customer service.
Applicability of the quality IM to PQ and ID regulation	<p>The quality IM requires a PQ determination to specify quality standards for availability and performance. Additional quality standards may also be specified for other quality dimensions.</p> <p>The quality IM requires an ID determination to specify quality performance measures and statistics for availability, performance, faults, and customer service. Additional performance measures may also be specified for other quality dimensions.</p>
Applicability of the quality IM to PQ and ID regulation	The quality IM allows PQ and ID regulation to differentiate by regulated provider, geography, fibre network architecture, FFLAS, and classes of end-user.

The purpose and structure of this chapter

- 5.2 This chapter sets out our final decisions on the quality IM, and the reasons for those decisions. It is structured as follows:
- 5.2.1 the context for the quality IM including legal requirements, economic incentives and interactions with other regulation (paragraphs 5.3 to 5.65);
 - 5.2.2 final decisions on:
 - 5.2.2.1 the level of prescription to use in setting the quality IM (paragraphs 5.66 to 5.96100);
 - 5.2.2.2 quality dimensions and metrics included in the quality IM (paragraphs 5.101 to 5.122);
 - 5.2.2.3 the application of the quality IM to PQ and ID regulation (paragraph 5.123 to 5.146); and
 - 5.2.3 how we plan to implement the quality IM in setting PQ and ID regulation (paragraphs 5.147 to 5.157).

Context for the quality IM

- 5.3 One of the topics that must be covered by the IMs is quality dimensions. The purpose of this IM is to provide a framework for regulating the quality of the regulated FFLAS that providers supply. As we explain further below, the quality IM sets out a list of quality dimensions – such as ordering, availability, and customer service – that capture aspects of FFLAS quality. When we formulate PQ and ID determinations, we will select the appropriate quality dimensions from this list (some will be mandatory, others optional), and set performance measures and quality standards.
- 5.4 This section sets out the legal requirements and regulatory framework which underpin the quality IM. It explains how the quality IM gives effect to the statutory purposes in Part 6 (s 162, 166(2)(b) and 174). It also describes how the quality IM interacts with other regulatory requirements, such as other IMs, s 226 regulations and s 227-229 regulations,⁵³³ and retail service quality (**RSQ**) regulation under Part 7. Lastly, it outlines our views on how the quality IM relates to the UFB contracts, Fibre Deeds and the wider fibre market context.

Requirements under the Act

- 5.5 The regulatory framework chapter explains our obligations and the timeframes to make IM, PQ and ID determinations. In addition, Part 6 sets out the following in relation to quality regulation.
- 5.5.1 Section 176(1)(b) states the IMs relating to FFLAS must include quality dimensions. The term “quality dimensions” is defined in s 164(1) as “measures of the quality of FFLAS, and may include (without limitation) responsiveness to access seekers and end-users.”
 - 5.5.2 Section 162(b) states a purpose of Part 6 is to promote outcomes consistent with outcomes produced in workably competitive markets so that regulated providers “have incentives to... supply FFLAS of a quality that reflects end-user demands”. We discuss how the quality IM promotes the purposes in Part 6, including s 162(b), further from paragraph 5.15 below.
 - 5.5.3 Section 194(2)(c) states that a PQ path must specify “...the quality standards that must be met by a regulated fibre service provider”. Section 194(4) also states these quality standards may “... be prescribed in any way

⁵³³ Regulations have been made under s 226 (Telecommunications (Regulated Fibre Service Providers) Regulations 2019), but have not yet been made under ss 227-229.

the Commission considers appropriate (such as targets, bands, or formulae)”.

- 5.5.4 Section 188(2)(i) states that information required to be disclosed under ID may include “quality performance measures and statistics” (performance measures). Section 188(2)(g) also states that we may require disclosure of information such as plans and forecasts about quality and service levels. We discuss how the quality IM will underpin PQ and ID regulation further from paragraph 5.123 below.
- 5.6 In light of these requirements in the Act, it is necessary to explain quality dimensions and other key terms relevant to the quality IM.
 - 5.6.1 **Quality dimensions:** are defined in s 164 as measures of regulated FFLAS quality. We see these as measures encompassing the broad aspects of service quality. The Act requires us to include quality dimensions in the IMs, but the PQ and ID determinations will select the quality dimensions against which providers will be assessed.⁵³⁴
 - 5.6.2 **Quality metrics:** apply to PQ and ID regulation and describe what is being measured and provide more granularity to quality dimensions. We have included example quality metrics in the quality IM to increase certainty for regulated providers, access seekers and end-users, but the actual metrics will be selected as part of the PQ and ID processes.
 - 5.6.3 **Performance measures:** are referred to in s 188 and will set out how quality metrics are measured and reported on by regulated providers under ID. Performance measures will be specified in the ID determinations.
 - 5.6.4 **Quality standards:** are levels of quality that must be met by a regulated provider, which must be specified in their PQ path under s 194.
- 5.7 Bringing these concepts together, the following explains how the quality IM underpins PQ and ID regulation.
 - 5.7.1 **In the PQ context:** each applicable quality dimension will be applied when we set the required level of performance specified through a quality standard.

⁵³⁴ The quality dimensions of availability, performance, faults and customer service will be mandatory for us in setting performance measures in an ID determination. Availability and performance will be mandatory dimensions for us in setting quality standards in a PQ determination.

- 5.7.2 **In the ID context:** each applicable quality dimension will be applied in setting the form of measure and reporting requirements for a performance measure.

Relevant economic incentives

- 5.8 In order to maximise profits in the presence of limited competition and/or a revenue cap, a firm has an incentive to reduce expenditure as this can improve profitability under PQ regulation. This is desirable to the extent that costs can be reduced while maintaining an appropriate level of quality. However, regulated providers may have weakened incentives to grow, maintain and replace assets, potentially to the detriment of quality and therefore the long-term benefit of end-users. Without effective competition, regulated providers subject to ID regulation only may also face weakened incentives to provide the quality that end-users demand.
- 5.9 Quality regulation addresses this problem by incentivising regulated providers to appropriately maintain and replace assets, support service levels, connect access seekers and end-users in a timely manner, and facilitate network competition. The quality regulation we will set via the quality IM, as well as PQ and ID regulation, therefore aims to incentivise regulated providers to supply FFLAS in a manner that is consistent with outcomes produced in workably competitive markets.
- 5.10 Given the dynamic nature of telecommunications' markets, increases in actual or threatened competition will tend to put pressure on regulated providers to supply the quality that end-users demand in order to remain competitive. Therefore, we consider that adopting a flexible principle-based approach to setting the quality IM will best reflect the market realities, and best give effect to the purposes described in s 166(2). The depth of regulation relating to quality set via PQ and ID could be reduced if competitive constraints increase in future.
- 5.11 The main tools at our disposal for regulating quality are the quality standards we will set via PQ regulation, as well as performance measures we will set via ID regulation – both of which are underpinned by the quality IM. The way the tools available to us incentivise regulated providers to provide the quality that might be observed in workably competitive markets is somewhat different in the PQ context compared to the ID context, as described below.
- 5.11.1 **In the PQ context:** a regulated provider may be penalised through civil or criminal proceedings if it does not meet certain standards of quality. In addition, there may be rewards and penalties associated with a revenue-linked quality incentive scheme, as well as compensation schemes and special reporting requirements if quality standards are not met.
- 5.11.2 **In the ID context:** a regulated provider is required to publicly disclose measures of quality performance and may face public or regulatory

scrutiny if its performance is considered to be lower than appropriate. In either case, the provider is disincentivised from taking steps that may diminish quality below an appropriate level.

- 5.12 Quality regulation of regulated FFLAS is generally concerned with ensuring that the quality provided is not below the level that end-users demand. However, if the regulatory WACC (cost of capital) was above the true WACC, a PQ regulated provider might also have a countervailing incentive to over-invest and deliver quality above the level that end-users demand because the provider would be able to earn a return on that investment. We mitigate this risk by setting an appropriate WACC and by the approval processes set out in the capex IM.
- 5.13 Regulated providers may be incentivised to lessen competition from downstream technologies competing with regulated FFLAS that use FFLAS as an input. For example, where they provide inputs (eg, bitstream services) to a downstream market (eg, retail broadband), regulated providers may have an incentive to provide a lower quality FFLAS input than access seekers demand in order to lessen their ability to compete at the retail level. Quality regulation set via PQ and ID regulation, along with the Fibre Deeds, helps to mitigate this incentive.⁵³⁵
- 5.14 Quality regulation can also be used to help identify poor asset management practices. It is possible that a regulated provider spends an appropriate amount on the maintenance and renewal of its network, but does not achieve an appropriate level of quality. For example, a regulated provider could fail to achieve the appropriate level of quality due to poor asset management, external events, or a combination of factors, rather than just under-investment.

The final quality IM gives effect to the purpose of Part 6: section 162

- 5.15 We consider the principal way the quality IM will give effect to the s 162 purpose is by helping ensure that regulated providers “have incentives to... supply FFLAS of a quality that reflects end-user demands” as set out in s 162(b). We seek to achieve this via ID regulation by allowing scrutiny of quality, and via PQ regulation by incentivising compliance with, and penalising contraventions of, quality standards.
- 5.16 Fibre end-users make price-quality trade-offs when making decisions about which retail service is best for them, so we interpret “quality that reflects end-user demands” as “the quality end-users are willing to pay for”, since demand is generally linked to price. When we set PQ regulation, we will assess the level of quality end-users demand and reflect this through minimum quality standards. As such, we will

⁵³⁵ Section 156AD and the Fibre Deeds require equivalence and non-discrimination in relation to the supply of unbundled layer 1 services.

set quality standards based on our assessment of what level of quality end-users demand in the first instance.

- 5.17 We expect end-user demands to change over time and have therefore chosen a principle-based level of prescription and a broad range of dimensions for the quality IM. We have also specified quality dimensions for which performance measures and quality standards must always be specified in PQ and ID determinations as these are likely to be of enduring importance to end-users. This will help ensure quality regulation provides incentives for regulated providers to deliver the quality we would expect to see in workably competitive markets.
- 5.18 We consider that the quality IM will also play a role in giving effect to the s 162(d) purpose by helping ensure regulated providers “are limited in their ability to extract excessive profits”. Performance measures and standards help limit the incentives regulated providers may otherwise have to profit from underspending on network and service quality. A principle-based IM with a broad set of dimensions will help ensure quality regulation can be targeted to respond to particular incentives.
- 5.19 Further, quality regulation can incentivise investment and innovation in line with s 162(a) by specifying performance measures that must be reported on and quality standards that must be met. For example, requirements for installation quality may help ensure that regulated providers invest in end-user specific infrastructure that may have an above average cost where they may otherwise have had an incentive to defer these installations.⁵³⁶
- 5.20 A less direct way in which the quality regulation we set via ID can promote the s 162 purpose is through summary and analysis. Requiring disclosure of information about quality, when assessed together with other financial and non-financial information, may be relevant in assessing whether regulated providers:
 - 5.20.1 “have incentives to improve efficiency” (s 162(b)); or
 - 5.20.2 are “limited in their ability to extract excess profits” (s 162(d)).
- 5.21 Disclosures may also show that the quality of a particular regulated provider’s FFLAS has been deteriorating over time. This may suggest funds which should have been invested in order to maintain quality have been retained by the regulated provider, in order to extract excessive profits. In this way, scrutiny of performance measures

⁵³⁶ The Chorus capex IM states that connection capex unit costs are determined before the start of the regulatory period for different connection types. This may create an incentive for Chorus to under-spend by deferring installations with an above average cost. Quality standards and performance measures will help address this incentive.

and other quality reporting requirements we set via ID regulation can help promote outcomes consistent with those produced in workably competitive markets.

- 5.22 Our final decisions on the level of prescription, quality dimensions and application of the quality IM will enable us to set PQ and ID regulation in a way that promotes the outcomes described in s 162(a), (b) and (d), all of which are outcomes we would expect to see in workably competitive markets. We do not consider that the quality IM decisions have a direct role in promoting the outcomes described in s 162(c).

The final quality IM gives effect to the promotion of workable competition in s 166(2)(b)

- 5.23 As discussed in paragraph 5.13, regulated FFLAS (eg, bitstream services) may be used as inputs for other services (eg, retail broadband). Because of this, the quality IM may help promote competition in other telecommunications markets by underpinning performance measures and quality standards that encourage regulated FFLAS to be provided at a quality that reflects access seeker and end-user demands.
- 5.24 Specifically, the quality dimensions take into account that some regulated FFLAS are likely to be used as inputs for telecommunications services that compete with regulated FFLAS-based services at the retail level. We have also accounted for the fact that access seekers in these markets might have specific quality requirements that may be different from those of end-users. The quality dimensions cover all steps in the regulated FFLAS lifecycle we identified and are broad enough to account for different regulatory requirements to be set under PQ and ID.
- 5.25 Further, adopting a principle-based approach to the quality IM, with a set of broad quality dimensions, builds flexibility into the regulatory regime. The ability to adapt the quality standards and performance measures may help promote competition by increasing the regime's responsiveness to changes in demand (eg, by allowing regulated providers to sell a lower quality service at a lower price). The IM will also provide the necessary flexibility to adjust PQ and ID requirements as competition emerges.

The final quality IM promotes the s 174 purpose and s 176(2)(a) requirement

- 5.26 The quality IM does not provide the rules that regulated providers must ultimately comply with, as these will be provided by the PQ and ID determinations. Rather, the quality IM provides the framework upon which PQ and ID determinations are based. We consider that the quality IM sufficiently promotes certainty by setting out:

- 5.26.1 a complete list of quality dimensions that may be applied in our PQ and ID determinations;

- 5.26.2 the quality dimensions that we will always specify quality standards and performance measures for in our PQ and ID determinations; and
 - 5.26.3 that we may include differentiated quality standards and performance measures in PQ and ID determinations.
- 5.27 The quality IM also includes examples of quality metrics. While it remains open to us to set different metrics in the PQ and ID determinations, we consider that providing examples provides increased certainty. We consider our approach in the quality IM strikes the right balance between flexibility and certainty, and that the IM will remain durable in a dynamic market.

The relationship between the quality IM and other IMs

- 5.28 Quality regulation aims to mitigate the incentives of regulated providers to reduce expenditure at the expense of quality. The Act provides us with different tools that we can use to mitigate the risk of under-investment in the network, and these regulatory tools interact. For example, we can set enforceable quality standards and performance measures that are supported by both the quality IM and the capex IM.
- 5.29 Compared to other industries we regulate, the regulated providers in the fibre market have relatively new networks. Because of this, the risk of under-investment resulting in outages that have an asymmetric impact on the end-user experience may be lower in the fibre industry. We discuss the asymmetric risk of under-/over-investment further in the cost of capital IM.
- 5.30 We also consider relying on quality regulation to mitigate the risk of under-investment (supported by the rules set in the Chorus capex IM) is a more targeted tool than a WACC uplift and can specifically address the expectations of end-users for FFLAS quality. In contrast, there is no guarantee that regulated providers will invest in higher network quality if an uplift to the regulatory WACC was allowed.
- 5.31 There is also a relationship between the quality IM and the Chorus capex IM, underpinned by the principle of FCM. The quality IM underpins quality standards required for the fibre network, and the Chorus capex IM deals with the investment required to deliver the required, enforceable level of quality. Specifically, the Chorus capex IM provides rules and processes that Chorus, as a regulated provider subject to PQ regulation, will be required to follow for capital expenditure proposals. As discussed in the Chorus capex IM, Chorus is required to set out the linkages between proposed capital expenditure and PQ FFLAS quality outcomes.
- 5.32 There is also an interaction between the quality IM and the RPR IM in relation to reopen events. In the case of a catastrophic or change event, we may reconsider the PQ path if the event results in the regulated provider failing to meet its quality standards. We consider it is appropriate to set a quality-based reopen threshold

since part of our task in deciding whether and how to amend a PQ-path is to consider the implications for quality standards, not just the revenue path.

Interaction with prescribed service regulations under s 226, and ss 227-229

- 5.33 Section 226 of the Act allows the Governor-General, by Order in Council on the recommendation of the Minister, to make regulations prescribing a person who provides FFLAS as being subject to either or both of PQ regulation and ID regulation. The section 226 regulations and regulated FFLAS are discussed in more detail from paragraph 2.40 of the regulatory framework chapter.
- 5.34 The quality IM applies to PQ FFLAS and ID FFLAS. Under the s 226 regulations, some FFLAS is exempt from PQ regulation, and the scope of regulated FFLAS could change further in the future. However, we do not consider the scope of regulated FFLAS under s 226 impacts our approach to setting the quality IM. Our quality IM dimensions are broad and flexible enough to set effective quality standards in PQ regulation and performance measures in ID regulation, irrespective of any changes to the scope of regulated FFLAS.
- 5.35 The Act also contemplates that the regulations made under ss 227 – 229 will specify the requirements of the declared services in detail, including by prescribing the terms of contractual arrangements that must be offered by providers to access seekers. We note that ss 208 and 209 set out provisions for the Commission to review the regulated fibre services.
- 5.36 We are setting the quality IM before initial regulations are made under ss 227-229. We need to ensure the quality IM is flexible enough to be able to work well for the initial regulated fibre services. A highly prescriptive quality IM could make it difficult to align quality regulation we set via PQ and ID with the specifications of the initial regulated fibre services, and future regulated fibre services.

Interaction with retail service quality

- 5.37 While Part 6 sets out the requirements for regulating wholesale fibre quality, we also have powers to regulate retail fibre quality, and telecommunications consumer matters more broadly, via Part 7. For example, we can set retail service quality (**RSQ**) codes which aim to “improve retail service quality to reflect the demands of end-users of telecommunications services,”⁵³⁷ including end-users of FFLAS.
- 5.38 RSQ is defined as “...the quality of retail service provided to an end-user of the service, including in relation to... customer service and fault service levels, installation issues, contract issues, product disclosure, billing, the switching process

⁵³⁷ For more information see Commerce Commission “Telecommunications retail service quality framework paper” (30 November 2018).

and related information, service performance, speed, and availability.” There is a clear cross-over between this definition and the quality dimensions IM.

- 5.39 We consider the main interaction between Part 6 and Part 7 will be on the aspects that affect fibre end-users and can be controlled, to some extent, by the regulated provider. For example, the service quality that end-users perceive will be based on the end-to-end service experience. This may be made up of actions from the retailer as well as the regulated provider.⁵³⁸
- 5.40 We expect that any quality regulation we set via PQ or ID regulation will acknowledge the degree of wholesale versus retail control, as discussed in paragraph 5.86. Similarly, the regulatory interventions available under Part 7 (Commission RSQ code and review of industry RSQ codes) will take account of controllability.
- 5.41 We will need to ensure that our powers under Part 6 and Part 7 are applied in a consistent and complementary manner and do not over-burden industry participants. For example, we will consider the interaction between ID regulation and our Part 7 powers to require the supply of information to support our functions of monitoring and reporting on RSQ.

Interaction with UFB contracts

- 5.42 Regulated providers entered into UFB contracts as part of the UFB initiative. Among other things, these contracts:
 - 5.42.1 require regulated providers to make available standard-form wholesale service agreements containing approved price and non-price terms for the supply of fibre services to access seekers;
 - 5.42.2 regulate the quality of the services that regulated providers make available to access seekers and, by extension, end-users; and
 - 5.42.3 prescribe service level targets and set out penalties in the form of payments or rebates for failure to meet those targets.
- 5.43 From the implementation date, the regulated providers’ supply of services currently governed by the UFB contracts (including pricing of those services) will become subject to regulation under Part 6 and the supply obligations under the UFB contracts will, for the most part, cease.⁵³⁹ This means that the UFB contract obligations outlined in paragraphs 5.42, including the obligation to provide wholesale service agreements, will no longer apply.

⁵³⁸ TUANZ “Submission on new regulatory framework for fibre” (21 December 2018), paragraph 26.

⁵³⁹ Certain provisions relating to UFB2 under the UFB contracts remain in effect past implementation date.

- 5.44 Accordingly, from the implementation date, we will regulate FFLAS quality in accordance with the provisions of Part 6, and CIP's supervisory role under the UFB contracts will cease in most respects. Part 6 quality regulation is different in purpose and function to quality regulation governed by the UFB contracts. We are moving to incentives-based BBM regulation which seeks to incentivise regulated providers to supply FFLAS of a quality that reflects end-user demands. We will do this by setting performance measures under ID and quality standards under PQ, with these regulatory tools underpinned by the quality IM.
- 5.45 The quality requirements in the UFB contracts have assisted us in setting the quality IM dimensions and example metrics and we anticipate that they will provide a useful starting point for PQ and ID regulation, at least for the first regulatory period. However, we do not consider that the level of prescription in the UFB contracts is appropriate for the IMs given that:
- 5.45.1 the IMs need to be durable and relevant in the face of technological and industry change;
 - 5.45.2 Part 6 is intended to operate in a macro fashion rather than governing the supply of particular services in particular circumstances;
 - 5.45.3 Part 6 provides for the regulation of particular FFLAS in the future, which may involve a higher degree of prescription; and
 - 5.45.4 the UFB contracts were commercial arrangements, carefully negotiated and drafted in a way that has been effective for their intended purpose, with very different consequences for failure than the quality incentives and penalties anticipated by Part 6.⁵⁴⁰

Submissions on the role of UFB contracts

- 5.46 In our draft decision we explained that the quality requirements in the UFB contracts have assisted us in setting the quality IM and can also be expected to help inform PQ and ID regulation. However, we do not consider it appropriate for the quality IM to be a mechanism to require the continuation of the wholesale services agreements currently required by the UFB contracts.⁵⁴¹
- 5.47 We received several submissions on the importance of wholesale service agreements in the context of our proposed approach to setting dimensions and metrics for the quality IM. In their joint submission, Vodafone, 2degrees, Spark and

⁵⁴⁰ Section 215 sets out the High Court may impose pecuniary penalties for breach of any PQ requirement.

⁵⁴¹ Commerce Commission "Fibre input methodologies – Draft decision paper" (19 November 2019), para 3.1486.

Vocus sought a mandatory metric under the customer service dimension for a change control process in relation to the wholesale service agreements.⁵⁴²

- 5.48 The joint access seekers' proposal argued that we should require regulated providers to report on adherence to this change process under ID and enable quality standards for compliance with the process via PQ regulation. They stated this would "require that changes or new clauses must be consulted with RSPs, sufficient notice periods are given, and in some cases a vote before changes could come into effect".⁵⁴³
- 5.49 The joint access seekers further proposed the IMs must include a mandatory metric under the customer service dimension for the disclosure of wholesale service agreements.⁵⁴⁴ In cross-submissions, Chorus responded by stating that we are moving to incentives-based regulation and away from "... previous regimes requiring detailed prescription and oversight of non-price terms."⁵⁴⁵
- 5.50 In its submission on our further consultation paper, Vodafone stated that it was "disappointed" that no changes had been made to the quality IM to reflect the joint access seekers' submission. It argued "many of the factors raised in the joint submission... can be addressed in PQ and ID determinations, but we considered them to be of sufficient importance to be included within the IMs".⁵⁴⁶ It also made the point that factors such as contract-related metrics may not fit well within the quality dimensions included in the IM, so may be considered out of scope.

Our response to submissions

- 5.51 As explained in our draft decision, we do not consider that setting contractual terms between third parties is within the scope of the quality IM.⁵⁴⁷ In our view, Parliament did not intend the model of regulation adopted in Part 6 to involve the IMs, PQ or ID regulation supplying the detailed terms and conditions between regulated providers and access seekers.
- 5.52 Quality regulation imposed by the Commission under Part 6 may affect the terms that parties contract on (where the Commission determines revenues, prices and quality standards) but only consequentially. We therefore do not consider that it is

⁵⁴² We also received supporting submissions from the joint access seekers individually, along with Nova and Trustpower.

⁵⁴³ 2Degrees, Spark, Vocus and Vodafone "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 8.

⁵⁴⁴ 2Degrees, Spark, Vocus and Vodafone "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 3.

⁵⁴⁵ Chorus "Cross-submission on Fibre input methodologies draft decision" (17 February 2020), para 15.13.

⁵⁴⁶ Vodafone "Submission on Fibre IMs further consultation package" (14 August 2020), page 7.

⁵⁴⁷ Commerce Commission "Fibre input methodologies – Draft decision paper" (19 November 2019), para 3.1486.

appropriate or consistent with the legislative regime to include the proposed contract change metric within the quality IM.

- 5.53 We are also moving to a new regime where the quality aspects of the UFB agreements are expiring and being replaced with a new regulatory model. In our view, to prescribe a change control requirement in the IMs would not give effect to the change that Parliament has established.
- 5.54 We do not consider contract regulation, and specifically a change control process, to be within the scope of the quality IM. However, we do have the power under s 188(2)(d) to require disclosure of contracts under ID regulation; our approach to setting the quality IM does not preclude this.
- 5.55 The regulated fibre services (being the anchor service, DFAS and an unbundled fibre service), discussed at paragraphs 5.33 to 5.36, can provide more detailed terms and conditions for the relationship between regulated providers and access seekers.
- 5.56 Regulations under ss 227-229 are made by the Governor-General on the recommendation of the Minister.⁵⁴⁸ The first regulations under ss 227-228 must not be materially different to the terms set out in a UFB contract, and therefore could include a change control process as under the UFB contracts.⁵⁴⁹
- 5.57 For the reasons outlined above, our view remains that it is not within the scope of the quality IM to directly regulate the contractual relationship between regulated providers and access seekers in the way suggested by access seekers.

Interaction with Fibre Deeds

- 5.58 The regulatory framework (from paragraph 2.12) chapter sets out a brief description of the Fibre Deeds. The equivalence and non-discrimination obligations in the Fibre Deeds should complement quality regulation and promote a level of consistency of service quality across certain FFLAS. The Fibre Deeds will continue to apply beyond implementation date, unless varied or terminated under Part 4AA.⁵⁵⁰ Sections 206

⁵⁴⁸ Sections 227(4), 228(4) and 229(4) and clauses 14(2), 15(2) and 16 of Schedule 1AA together provide that, apart from the first regulations, the Minister must not recommend regulations be made, unless the Commission has carried out a review and recommended the regulations be made pursuant to ss 208 and 209 respectively.

⁵⁴⁹ Clauses 14(3) and 15(3) of Schedule 1AA.

⁵⁵⁰ Section 156O sets out procedures for terminating the Fibre Deeds. Sections 156AL to 156ANA set out procedures for varying, clarifying and amending the Fibre Deeds.

and 230 of Part 6 also contain specific provisions to modify, or discharge a regulated provider from obligations under the Fibre Deeds.^{551,552}

- 5.59 Non-discrimination obligations in the Fibre Deeds mean regulated providers must not treat access seekers differently to one another, or differently to themselves. Equivalence obligations mean regulated providers must supply relevant FFLAS to access seekers on the same basis that they supply to themselves.
- 5.60 In its submission on our draft decision, Vector noted the important interaction between equivalence and non-discrimination and FFLAS quality. It also encouraged us to ensure the quality IM, PQ and ID regulation “...establish a quality framework for measuring services which are provided in a manner where equivalence and non-discrimination can be established and measured transparently”.⁵⁵³
- 5.61 We acknowledge that the Fibre Deeds will play a role in maintaining a level of consistency of service quality in the supply of regulated FFLAS. However, equivalence and non-discrimination requirements relevant to FFLAS are governed by Part 4AA and the Fibre Deeds.
- 5.62 While our PQ and ID determinations will interact, and be consistent, with these provisions, we concluded in our draft determination that we do not consider it within our power to set IMs specifically for the purpose of implementing the equivalence and non-discrimination requirements in Part 4AA and the Fibre Deeds. Submitters have not disagreed with this conclusion.⁵⁵⁴ Furthermore, as noted in the regulatory framework chapter, we have decided only to set the mandatory IMs at this stage.
- 5.63 Notwithstanding this, it is within our powers to require information disclosure on equivalence and non-discrimination matters under ID regulation. We note Vector’s submission and will consider whether information relating to equivalence and non-discrimination is necessary and appropriate for ID in accordance with the purposes set out in Part 6.⁵⁵⁵

⁵⁵¹ Section 206 provides that a regulated provider is not required to achieve price equivalence in relation to the supply of an unbundled layer 1 service, to the extent that the service is an input to a relevant service which is subject to a prescribed maximum price and that maximum price is not cost-based.

⁵⁵² Section 230 provides that, in making regulations under ss 228 n respect of a DFAS or 229 in respect of an unbundled fibre service, the Governor-General may, on the recommendation of the Minister, make further regulations to discharge an LFC from its obligations to supply a service under the Fibre Deeds.

⁵⁵³ Vector “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 62.

⁵⁵⁴ As we note in paragraph 2.381 of the regulatory framework chapter, we have decided not to set an unbundling IM at this stage. If we chose to do so in the future, we would consider the extent to which the equivalence and non-discrimination obligations might be relevant to that IM.

⁵⁵⁵ Clause 10 of Schedule 1AA provides an LFC is not required to comply with any ID requirements under Part 4AA in respect of any period during which the LFC is also subject to ID regulation under Part 6.

Fibre market context

- 5.64 As well as considering the role of the quality IM in the regulatory context, we have also considered the commercial realities faced by regulated providers, and how these might affect how we set the quality IM. We consider that our approach to the quality IM reflects:
- 5.64.1 the incentives regulated providers have in relation to quality, and how these incentives might change in the face of increased competition in telecommunications markets;
 - 5.64.2 the dynamic nature of the telecommunications industry, where technology and end-user demands change rapidly; and
 - 5.64.3 the quality dimensions that can be controlled by regulated providers at least to some degree, as opposed to those that access seekers have more control over.
- 5.65 In determining the quality IM, we have considered a fibre market that has had the benefit of Crown subsidies. We expect to give the same consideration to setting quality standards under PQ regulation. This means we anticipate setting quality standards by reference to a market that has a higher amount of fibre deployment and uptake, reflecting the benefit of Crown subsidies, compared to a fibre market that has not received a subsidy.

Final decision: level of prescription to use in setting the quality IM

- 5.66 This section sets out our final decisions for the quality IM on the level of prescription of the quality IM. Our decision is that the quality IM will specify quality dimensions and example metrics (but not performance measures or quality standards).

Explanation of the level of prescription

- 5.67 One of the main issues we face in implementing the new fibre regime is the balance between flexibility and certainty in a dynamic environment. In deciding this balance, we have considered the need for regulated providers, access seekers and end-users to have certainty on how we intend to apply the quality IM to PQ and ID regulation. We have also factored in the dynamic nature of the telecommunications markets and the need for the quality IM to remain relevant and appropriate for the PQ path for the first and subsequent regulatory periods.
- 5.68 Our view is that it is important that regulated providers have the flexibility and incentives to innovate and adapt their services, business operations and investments in response to market changes and increasing competition. It is also important to consider that as competition increases in regulated FFLAS markets and other

telecommunications markets, regulated providers' incentives to maintain, increase or reduce quality will also change.

- 5.69 We have also considered the s 176(2)(a) requirement to ensure the quality IM, as far as it is reasonably practicable, sets out the quality dimensions in sufficient detail so that each affected regulated provider is reasonably able to estimate its material effects. We have balanced this against the fact that elements of PQ regulation will require change and the exercise of judgement at each regulatory reset.
- 5.70 As part of our early work on fibre regulation, we commissioned a report from CEPA which undertook a preliminary analysis of the potential scope of "quality dimensions" and relevant international experience in this area. Our draft decision was that the quality IM should be set at a level of prescription that broadly aligns with "level 3" described in the CEPA report:⁵⁵⁶

[Level 3] sets out the nature of the metrics relating to the quality dimensions that are deemed relevant. For example, the IM might specify that under the ID regime, there must be a quality metric to measure how soon end-users are connected following a connection request. The IM could also set out how metrics should be measured. For example, this might include details on how the data would be gathered, and whether there would be any exclusions (for example, if an end-user failed to attend a connection appointment).

- 5.71 To increase certainty for stakeholders, our draft decision was to provide examples of quality metrics, setting out what could be measured for dimensions (such as "average downtime", for the "availability" dimension). However, we did not set out how such quality metrics could be measured, as this is likely to be subject to greater change when we seek submitters' views on these issues as part of our process to set the PQ and ID determinations.

Submitters' views on the level of prescription

- 5.72 We received the following submissions on our draft decision.
 - 5.72.1 ENA submitted that "...highly prescriptive quality standards which do not have capex and opex levels established to deliver the programmes will result in suppliers breaching their quality standards because trade-offs have not been effectively considered to deliver the output."⁵⁵⁷
 - 5.72.2 Chorus submitted that "...an IM which specifies dimensions and metrics is generally the right level of prescription."⁵⁵⁸

⁵⁵⁶ Cambridge Economic Policy Associates "Quality dimensions of wholesale fibre telecommunications services" (1 November 2018).

⁵⁵⁷ ENA "Submission on Fibre input methodologies – Draft decision" (30 January 2020), para 8.

⁵⁵⁸ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), para 277.

- 5.72.3 Nova submitted that greater prescription in the quality IM “...will provide greater certainty for both RSPs and end-users”.⁵⁵⁹
- 5.72.4 Chorus and Northpower submitted that the quality dimensions should have an exhaustive list of metrics in order to provide certainty.⁵⁶⁰
- 5.72.5 2Degrees responded to Chorus and Northpower in its cross-submission, arguing that an exhaustive list of metrics would “...unnecessarily constrain the Commission’s ability to respond to changing market”.⁵⁶¹
- 5.73 In response to these submissions, we consider having example metrics means that when we go to set PQ and ID, we may include some of the example metrics from the IM, as well as others that better reflect market realities. This gives us enough flexibility to set performance measures and quality standards in a way that can be adapted to changing market circumstances. Making the metrics exhaustive would constrain our ability to respond to changing market conditions without first amending the quality IM.
- 5.74 In response to the ENA submission, we consider that setting more specific requirements under PQ regulation will also allow us to better align these with capex and opex forecasts once Chorus has outlined the linkages between forecast expenditure and PQ FFLAS quality outcomes in its capex proposals, as per the Chorus capex IM.
- 5.75 Vector’s submission on our draft decision is also relevant to the level of prescription in the quality IM. It argued that the quality IM should require a higher level of prescription for new services such as layer 1 PONFAS since “... industry negotiation has not yet occurred”.⁵⁶²
- 5.76 In our view, PQ regulation and ID can respond to specific requirements for new FFLAS such as PONFAS using the level of prescription we set in the quality IM. In setting such requirements for PQ and ID, we expect to apply the principle of proportionality, as explained from paragraph 5.77. If necessary, we may set different quality standards and performance measures for new services.

Best practice principles applying to PQ and ID regulation

- 5.77 Also relevant to the level of prescription are the best regulatory practice principles we intend to follow in applying the quality IM to PQ and ID regulation. We have not

⁵⁵⁹ Nova “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 5.

⁵⁶⁰ Northpower “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 3; Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 292.

⁵⁶¹ 2Degrees “Cross-submission on Fibre input methodologies draft decision” (17 February 2020), page 12.

⁵⁶² Vector “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 15.

included these principles in the IM determination, rather the principles are a statement of good regulatory practice that we intend to follow in making our decisions. We will ensure that any performance measures or quality standards are.⁵⁶³

- 5.77.1 **relevant**: to ensure FFLAS service quality reflects end-user demands;
- 5.77.2 **measurable**: able to be measured by regulated providers;
- 5.77.3 **verifiable**: able to be checked or demonstrated to be true or accurate;
- 5.77.4 **controllable**: able to be controlled (at least to some extent) by regulated providers; and
- 5.77.5 **proportionate**: the benefits to access seekers or end-users justify the costs to regulated providers.

Submitters' views on best practice principles

- 5.78 In submissions on our draft decision, Chorus supported our decision to describe the principles against which potential measures and standards will be evaluated, but submitted that these principles should be included in the IM determination itself.⁵⁶⁴ Chorus also submitted that an additional principle should be added around avoiding double regulation, or ensuring the appropriate regulatory instrument is used.⁵⁶⁵
- 5.79 Our view is that we should maintain the approach set out in the draft decision. That is, we will include the best practice principles in the reasons paper but not in the quality IM. The purpose of IMs is to provide certainty in relation to the “rules, requirements, and processes” applying to regulation. By contrast, the principles that we have outlined reflect regulatory best practice that will guide us in applying the IMs and the rest of the regime.
- 5.80 As we explain below, Chorus disagrees with how certain of the principles are expressed. While we could resolve the form of expression, differences of view as to the interpretation and application of the principles could well arise in practice. The risk of such disagreements reinforces our view that it would not promote the purposes of the regime to lock them into the IMs.

⁵⁶³ Cambridge Economic Policy Associates “Quality dimensions of wholesale fibre telecommunication services” (9 November 2018), page 11.

⁵⁶⁴ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paras 278 – 290.

⁵⁶⁵ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 77; Chorus “Submission on Fibre input methodologies – Draft decision”– Appendix C” (30 January 2020), pages 19-20.

- 5.81 In its submission on the further consultation paper, Chorus made the point that some of the definitions of terms relevant to the quality IM are interrelated, such as downtime, fault, outage, ordering and switching. It urged us to "avoid regulatory uncertainty and double jeopardy that could be caused by overlapping measures which are functions of each other".⁵⁶⁶ It submitted that this is especially important since we have not included principles in the quality IM determination.
- 5.82 We acknowledge that there are relationships between some of these definitions, as illustrated in Figure 5.1. The nature of the fibre service lifecycle means that different stages in the process will often interrelate, and problems with one quality dimension could lead to problems with another. Any relationship between definitions will be carefully managed when we set quality standards and performance measures.
- 5.83 Chorus also submitted that the principle of controllability should be amended to mean that performance measures and quality standards must be "within the control of the regulated provider".⁵⁶⁷
- 5.84 In contrast, 2degrees cross-submitted that "it is inevitable external factors mean service providers... won't have full control over service quality outcomes. This isn't a reason to exclude any particular service quality measure".⁵⁶⁸
- 5.85 In addition, Vocus cross-submitted that the Commission "should allow service quality measures and targets to be set where the regulated supplier [has] some control, but not necessarily complete control, over the quality outcomes".⁵⁶⁹
- 5.86 As set out in the draft reasons paper, we consider the quality dimensions and example metrics we have included in the quality IM are all partially or entirely within the control of regulated providers.⁵⁷⁰ The relationship between regulated provider actions and quality outcomes can be complex and we agree with 2degrees that external factors may have an impact.
- 5.87 We will always consider the level of control regulated providers have over aspects of quality when setting, monitoring and enforcing PQ and ID regulation. For example, in PQ and ID determinations we might include exceptions to performance measures and quality standards to cover factors outside the wholesaler's control.

⁵⁶⁶ Chorus "Submission on Fibre IMs further consultation package" (14 August 2020), para 122.

⁵⁶⁷ Chorus "Submission on Fibre input methodologies – Draft decision"– Appendix C" (30 January 2020), pages 20 and 23.

⁵⁶⁸ 2Degrees "Cross-submission on Fibre input methodologies draft decision" (17 February 2020), page 14.

⁵⁶⁹ Vocus "Cross-submission on Fibre input methodologies draft decision" (17 February 2020), page 4.

⁵⁷⁰ Commerce Commission "Fibre input methodologies – Draft decision paper" (19 November 2019), para 3.1511.2.

Quality regulation learnings from Part 4 regulation

- 5.88 Also relevant to the level of prescription is the fact that quality regulation under Part 6 will be different from quality regulation under Part 4, in that Part 6 requires us to set a quality IM. We have not set a highly detailed quality IM because we will set more detailed quality requirements in PQ and ID determinations.
- 5.89 The joint access seekers suggested that the Commission could build on Part 4 learnings, such as information on planned and unplanned outages, and quality improving over time.⁵⁷¹ They also raised concerns about the fact that the Commission “has proposed a broad principle-based approach to setting quality”, and that “detailed service specifications are left unstated.”
- 5.90 We agree that many of these issues are important and relevant in informing quality regulation under Part 6. However, our view is that these learnings from Part 4 are not directly relevant to the quality IM, but will be useful when we develop PQ and ID regulation.

Rationale for our final decision: level of prescription

- 5.91 Our final decision is for the quality IM to set out the quality dimensions that quality standards and performance measures may be set for under PQ and ID. As noted above, we expect end-user demands to change over time and have therefore chosen a principle-based level of prescription based on quality dimensions for the quality IM, with more prescription used when setting PQ and ID regulation.
- 5.92 Setting quality dimensions in the quality IM while including more detail in PQ and ID determinations, will provide stakeholders with sufficient certainty, while still allowing flexibility for quality regulation to change in response to changes in market circumstances.
- 5.93 We also considered setting a more prescriptive quality IM. Our view is that this would mean that we would likely have to amend the quality IM before each PQ reset or ID amendment, which would increase costs without any real increase in certainty. Our view is that we should maintain this level of prescription for the final decision, as it provides the flexibility needed to ensure appropriate performance measures and quality standards can be set as part of PQ and ID.
- 5.94 We will use a greater level of prescription when setting PQ and ID, applying the best regulatory practice principles, and also looking at learnings from Part 4 quality regulation. However, we do not consider that including the principles in the IM determination would improve future decision-making as it is important that we are able to exercise broad judgement in making decisions within the principles’

⁵⁷¹ 2Degrees, Spark, Vocus and Vodafone “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 7.

parameters. We also do not consider that it would provide significantly more certainty because the principles represent regulatory good practice that we would expect to always base our decisions on.

- 5.95 In addition, we consider that including principles in the determination would be overly prescriptive, and is unnecessary since we will follow these principles in any case when applying the quality IM to PQ and ID regulation. For example, we will always consider controllability when determining how the quality dimensions will translate into performance measures and quality standards.

Promoting the statutory purposes

- 5.96 We consider that we have set the appropriate degree of prescription in the quality IM that best gives effect to the purposes of Part 6, as well as the purpose of IMs. Our view is that the quality IM provides "...sufficient detail so that each affected regulated fibre service provider is reasonably able to estimate the material effects of the methodology on the provider", as required by s 176(2)(a) of the Act. In our view, the level of prescription we have adopted also provides sufficient certainty to meet the purpose of s 174 of the Act.
- 5.97 We consider the quality dimensions and example metrics in the quality IM promote certainty as to what regulated providers may be required to measure and report on via ID regulation and what quality standards we may set. For example, the IM sets out the mandatory and optional quality dimensions for quality standards and performance measures. Regulated providers know that we will always set quality standards for availability and performance, and that they will always have to report on performance measures for availability, performance, customer service and faults.
- 5.98 We also consider that setting an overly prescriptive quality IM could potentially restrict us from setting more effective quality standards in a PQ determination or more effective performance measures in an ID determination contrary to the s 166(2) purposes.
- 5.99 Unless we amend the quality IM regularly or before each PQ reset, including too much detail or prescription in the quality IM may reduce our ability to set effective PQ and ID regulation that promotes the long-term benefit of FFLAS end-users. By only setting out quality dimensions and example metrics in the IM, we can determine those quality standards and performance measures that are most relevant to the market context at the time of the determinations, allowing quality regulation to better reflect end-user demands at that time.
- 5.100 We consider the level of prescription we are using to set the quality IM provides the best level of detail for us to make effective PQ and ID determinations on quality. If the IM were too prescriptive or detailed, it may not reflect access seekers' or end-user demands at a future time, which may impede effective downstream

competition. This would affect our ability to promote workable competition in telecommunications markets.

Final decision: quality dimensions and metrics included in the quality IM

- 5.101 Our final decision is to include the following exhaustive list of seven quality dimensions in the quality IM, as set out in CEPA’s “quality dimensions of a regulated FFLAS lifecycle” model: ordering, provisioning, switching, faults, availability, performance, and customer service.⁵⁷²
- 5.102 We have also included example quality metrics in the final determination, which relate to each of the quality dimensions as illustrated in Table 5.2. In addition, we recognise that there is a relationship between some of these quality dimensions and metrics. Figure 5.1 summarises the relationship between availability, downtime, faults, planned and unplanned outages, and performance.

⁵⁷² Cambridge Economic Policy Associates “Quality dimensions of wholesale fibre telecommunications services” (1 November 2018), page 10.

Table 5.2 Quality dimensions and example metrics in the quality IM

Quality dimension	Quality metrics
Ordering	May include the time to accept or reject a request.
Provisioning	May include the time to provision FFLAS and the time to disconnect from one FFLAS and connect to another.
Switching	May include the time to disconnect FFLAS from a losing access seeker and connect to a gaining access seeker.
Faults	May include incidence of faults and time to restore FFLAS.
Availability	May include maximum downtime, average downtime, and notification to access seekers of outages.
Performance	May include frame delay, frame loss ratio, frame delay variation, and port utilisation.
Customer service	May include end-user connection satisfaction, missed appointments, and the time to establish an access seeker.

Figure 5.1 Interrelated quality dimensions and metrics

Availability is the extent to which FFLAS is not subject to downtime

A planned outage is a scheduled outage that has been notified to access seekers (as opposed to an unplanned outage)

Downtime is the length of time FFLAS is subject to outages

A fault is an unplanned outage or a reduction in the performance of FFLAS below specified levels

An outage is a cessation in the supply of FFLAS

Performance is the technical functioning of FFLAS

Submitters' views on choice of quality dimensions and example metrics

- 5.103 We received several submissions on our draft decision on the scope of the quality dimensions and example metrics included in the quality IM. Submitters suggested that the dimensions and metrics should be more detailed, or that they did not accurately reflect industry realities.

- 5.104 Vocus submitted that the Commission should aim to “...capture service quality measures and targets” for each of the seven quality dimensions.⁵⁷³ In response to this, we consider that this level of detail is more appropriate to include in PQ and ID regulation. If we were to set targets in the quality IM this would conflate the separate processes of setting the IM, and PQ and ID quality regulation, and hinder our ability to keep up with fibre market changes.
- 5.105 The joint access seeker submission recommended “including a customer (end-user/RSP) satisfaction survey so it can play a critical role in identifying areas of under-performance and under-investment and in motivating regulated providers to respond appropriately”.⁵⁷⁴ Our view is that a customer satisfaction survey could generate valuable insights, but that ID regulation is the correct tool for setting out details of what a survey should cover, rather than the quality IM.
- 5.106 On the quality metrics relating to performance, Enable and Ultrafast submitted that reporting on these metrics would be intrusive and disproportionately expensive to measure, and that “...reporting on port utilisation and customer usage should be sufficient”.⁵⁷⁵ Our view on this issue is that we will apply the principle of proportionality when we set PQ and ID regulation, by weighing up the costs and benefits of particular measures and standards.
- 5.107 Enable and Ultrafast submitted that maximum downtime is not an appropriate measure. It also argued that “ordering” can be captured by “provisioning”, and that “faults” can be captured by “average downtime”.⁵⁷⁶ We disagree and consider all of these dimensions and metrics provide a picture of the quality of FFLAS.
- 5.108 In its cross-submission, 2degrees responded to Enable and Ultrafast’s submission, arguing it is important to allow for reporting on the incidence of faults to accurately track network degradation and responsiveness to access seekers over time.
- 5.109 2degrees also disagreed with Enable and Ultrafast’s suggestion to combine the ordering and provisioning dimensions, since these are “...discrete processes, both of which are important in delivering fibre services that meet end user quality requirements.”⁵⁷⁷ We agree with 2degrees on these points.

⁵⁷³ Vocus Group “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 39.

⁵⁷⁴ 2Degrees, Spark, Vocus and Vodafone “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 3.

⁵⁷⁵ Enable and Ultrafast “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 17.

⁵⁷⁶ Enable and Ultrafast “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 16.

⁵⁷⁷ 2Degrees “Cross-submission on Fibre input methodologies draft decision” (17 February 2020), page 11.

5.110 Chorus also suggested we change the wording of several definitions and descriptions of quality dimensions and metrics.⁵⁷⁸ Following these suggestions we have made various changes to the wording of the quality IM determination, but we do not agree with other suggestions.⁵⁷⁹ Chorus' submissions and our responses are summarised as follows.

5.110.1 Chorus suggested a change to the definition of "frame delay variation" to clarify that it means the variation in frame delay over "a time interval". It also suggested a change to the defined term "frame loss" to align with the engineering definition and the generally accepted term which is "frame loss ratio". We agree and have changed these definitions accordingly.

5.110.2 It submitted that "availability" is a generic term and should not be defined in relation to a "fibre network" or in relation to "regulated FFLAS".⁵⁸⁰ We agree with Chorus that the definition should not relate to the fibre network (as availability may be impacted by factors outside the fibre network). However, we consider it necessary to retain the words "regulated FFLAS" in the definition as the quality IM relates to regulated FFLAS.

5.110.3 Chorus also suggested that the definition of "fault" should be defined as: "...means an unplanned outage of a service caused by a matter for which the regulated provider is responsible".⁵⁸¹ We agree that faults should be defined with reference to unplanned outages, but also consider that faults can render regulated FFLAS unusable through reduced performance.

5.111 We also do not consider it necessary to include "...caused by a matter for which the regulated provider is responsible" within the definition of fault, as suggested by Chorus. This is because we consider that Chorus' suggested drafting is ambiguous and therefore, does not promote sufficient certainty, consistent with the purpose of IMs in s 174. Also, we will apply the principle of controllability when setting quality regulation via PQ and ID.

5.112 Chorus also suggested a change to the definition of "ordering" since ordering is not only about new connections and can also relate to other types of orders. We agree

⁵⁷⁸ Chorus "Submission on Fibre input methodologies – Draft decision" – Appendix C" (30 January 2020), pages 2-9.

⁵⁷⁹ These changes can be found in Commerce Commission "Fibre input methodologies – Further consultation draft – Reasons paper" (23 July 2020), section 3.

⁵⁸⁰ Chorus "Submission on Fibre input methodologies – Draft decision" – Appendix C" (30 January 2020), page 2.

⁵⁸¹ Chorus "Submission on Fibre input methodologies – Draft decision" – Appendix C" (30 January 2020), page 5.

and have defined ordering as processing or managing a request to provide, change or disconnect FFLAS.

- 5.113 We consider that the technical definitions contained in our final decision are relevant and accurate, since many of the quality dimensions and example metrics are already used in UFB contracts. In its submission on our further consultation paper, Chorus stated that it supported our revised quality dimension definitions, and that “these changes improve the workability of the quality regime”.⁵⁸²

Rationale for our final decision: quality dimensions and example metrics

- 5.114 We have decided to adopt the quality dimensions set out in Table 5.2 because they are largely familiar to industry and are important to end-users and access seekers. In setting the IM, we looked to the UFB contracts for guidance, and observed that all of these dimensions and metrics were reflected to some extent. Because of this, we do not consider we have included any quality dimensions and example metrics that are unfamiliar to regulated providers, or that they do not reflect fibre industry reporting practices.
- 5.115 In addition, these quality dimensions and metrics are all partially or entirely within the control of regulated providers and can easily be applied to quality performance measures and quality standards.

The promotion of the purpose of Part 6: section 162

- 5.116 We considered only including a subset of the quality dimensions in the IM, such as availability and performance. However, our view is that promoting the s 162 purpose requires us to be able to set performance measures and quality standards across other dimensions to fully reflect all aspects of “quality that reflects end-user demands”, as required by s 162(b).
- 5.117 Given the change in the regulatory environment we consider it is important we set out more, rather than fewer, quality dimensions in the IM. Our view is that as industry agreements fall away, it is important to have safeguards in place to protect the interests of end-users if certain quality dimensions give us cause for concern.
- 5.118 We are also aware that end-user demands tend to evolve over time as telecommunications technology changes. For example, the quality dimensions that were deemed to be important in the build phase of the UFB initiative roll out, such as provisioning and installation, may become less important to end-users once more have moved to fibre.⁵⁸³

⁵⁸² Chorus “Submission on Fibre IMs further consultation package” (14 August 2020), para 32.

⁵⁸³ Commerce Commission “Fibre regulation emerging views – Technical paper” (21 May 2019), page 152.

- 5.119 Having more quality dimensions also allows us to rely more on performance measures, enforceable standards and financial incentives to detect and discourage “hidden” under-investment leading to quality degradation, and eventually outages. This in turn lessens the need for a WACC uplift, which can be costly for end-users.

The promotion of workable competition: section 166(2)(b)

- 5.120 Including a broad set of quality dimensions will enable us to set measures and standards as part of PQ and ID that help promote competition in relevant markets and benefit telecommunication services end-users as well as FFLAS end-users.
- 5.121 We have specified quality dimensions that cover the entire lifecycle of FFLAS as well as customer service. Our view is that setting a broad list of quality dimensions helps ensure that when we set quality regulation via PQ and ID, we can limit the ability of regulated providers to degrade the quality of any FFLAS used as inputs (eg, DFAS) for telecommunications services that compete with FFLAS-based services at the retail level. This is because potential areas of concern from a competition perspective may change over time. A broad list of quality dimensions will enable us to respond if we see evidence of quality degrading in a new or different aspect of the FFLAS lifecycle.

The purpose of IMs: section 174

- 5.122 We consider that including the quality dimensions and example metrics set out above provides certainty as to the potential ambit of quality standards and performance measures. It also ensures that the quality IM is durable by covering potential shifts in importance of different aspects of the regulated FFLAS lifecycle.

Final decision: application of the quality IM to PQ and ID regulation

- 5.123 Our final decision is to apply the quality IM to PQ and ID regulation as follows.

5.123.1 PQ regulation: quality standards under PQ regulation must be specified for the quality dimensions of “availability” and “performance”. Quality standards may also be specified for the other quality dimensions (ordering, provisioning, switching, faults and customer service) in a PQ determination.

5.123.2 ID regulation: performance measures must be set under ID for the quality dimensions of “performance”, “availability”, “faults” and “customer service”. Performance measures may also be specified for the other quality dimensions (ordering, provisioning and switching) in an ID determination.

Explanation of how the final quality IM underpins PQ and ID regulation

- 5.124 Section 192 states that the purpose of PQ regulation is to regulate the price and quality of FFLAS provided by regulated fibre service providers. In addition, s 194

stipulates that we must set quality standards in a PQ determination. Quality standards will be prescribed in a way consistent with the quality IM, as the IM provides the base rules relating to quality that are adopted by a PQ determination.

- 5.125 As well as standards, PQ regulation may also provide financial and non-financial incentives linked to quality. Section 194(3) states that a PQ path “may include incentives for a regulated fibre service provider to maintain or improve its quality of supply”. These incentives may include penalties, rewards, compensation schemes or reporting requirements.
- 5.126 Section 186 states that the purpose of ID regulation is to ensure that sufficient information is readily available to interested persons to assess whether the purpose of Part 6 is being met. Section 188(2) stipulates that we may include performance measures, as well as plans and forecasts about quality and service levels in an ID determination. The quality IM sets the base rules for quality reporting requirements that will be adopted by an ID determination.
- 5.127 ID reporting will provide visibility as to whether regulated providers are supplying “fibre fixed line access services of a quality that reflects end-user demands”, consistent with s 162(b). For example, the information disclosed might highlight the fact that a regulated provider is slow to rectify faults, provides a fast service with few interruptions, or has high scores on installation experience surveys.

Submitters' views on how the quality IM underpins PQ and ID regulation

- 5.128 In reaching our final decision, we considered views raised by stakeholders as to how the quality IM should be applied to PQ and ID regulation. For example, our decision to include faults and customer service as mandatory dimensions for ID has changed from the draft decision following submissions. Examples of submissions on this issue we agree with included the following.
 - 5.128.1 The joint access seekers recommended “making determinations mandatory for the customer service dimension, including responsiveness to access seekers” to reflect access seekers’ role in supporting end-user needs.⁵⁸⁴
 - 5.128.2 Nova argued that PQ and ID determinations must be mandatory for customer service because it “underpins all six of the other quality dimensions”.⁵⁸⁵

⁵⁸⁴ 2Degrees, Spark, Vocus and Vodafone “Submission on Fibre input methodologies – Draft decision” (30 January 2020), pages 10-11.

⁵⁸⁵ Nova Energy “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 5.

- 5.128.3 Similarly, 2degrees submitted that customer service “tracks across the lifecycle of fibre products meaning that as the fibre network matures, it will remain crucial to the end-user experience”.⁵⁸⁶
- 5.128.4 The joint access seekers also argued that faults “...are so closely linked to network performance and availability that the Commission will not get a clear view of the latter two dimensions unless determinations are also mandatory for the faults dimension”.⁵⁸⁷
- 5.129 We do not agree with Chorus’ submission on our draft decision that we should remove end-user connection satisfaction from the list of example metrics for PQ, but that it could be maintained for ID. Chorus’ point was that including this metric in the quality IM for PQ would be inconsistent with the principle of controllability, since RSPs have a significant influence on this measure. Our view is that the end-user connection satisfaction metric, if and when applied to PQ or ID, would be useful in showing the quality of FFLAS end-users experience, even though the regulated provider can only influence certain aspects of this experience.
- 5.130 Submitters on our draft decision also raised the following points about the importance of ID reporting in relation to the quality of FFLAS.
- 5.130.1 2degrees submitted that regular reporting “...provides an up to date view of LFC responsiveness to access seekers”.⁵⁸⁸
- 5.130.2 Northpower submitted that we should use information LFCs provide for the purposes of other obligations before imposing further obligations, as this would increase efficiency and avoid duplicating requirements.⁵⁸⁹
- 5.130.3 Enable and Ultrafast submitted that the quality IM is not needed for ID because they are already subject to quality requirements via other obligations. They also argued that they face competition from competing technologies which ensures that they meet end-users’ quality demands.⁵⁹⁰
- 5.130.4 2degrees responded to Enable and Ultrafast’s suggestion, submitting that “ID plays a unique role in PQ regulation, one that cannot simply be filled by relying on other quality related obligations... Information collated through

⁵⁸⁶ 2Degrees “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 28.

⁵⁸⁷ 2Degrees, Spark, Vocus and Vodafone “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 28.

⁵⁸⁸ 2degrees “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 28.

⁵⁸⁹ Northpower “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 2.

⁵⁹⁰ Enable and Ultrafast “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 51.

other obligations, such as TCF Codes, is not subject to the same regulatory framework/requirements and cannot fulfil the statutory purpose".⁵⁹¹

- 5.131 We agree with 2degrees that ID obligations are essential in ensuring the fibre regime works well, and quality reporting requirements play a crucial role in this. Reporting by regulated providers under ID will need to be detailed enough to enable interested parties to assess whether the purpose of Part 6 is being met. While the quality IM itself does not go into any detail about ID reporting requirements, these may be set out in an ID determination.
- 5.132 In response to the LFCs' submissions, we reiterate that the Act requires us to set a quality IM and to make an ID determination (including the discretion to set performance measures). We consider that the quality IM should apply to ID, as well as PQ, as this will help ensure regulated providers have incentives to improve efficiency and supply FFLAS of a quality that reflects end-user demands per s 162. However, when setting ID regulation, we intend to consider the reporting capability of regulated providers, including any of their existing reporting obligations.
- 5.133 In response to Enable and Ultrafast's submission regarding competitive constraints, we wish to emphasise that in setting quality regulation under ID (and PQ) regulation, we will apply the competition screening considerations set out in our economic framework. This will help us assess whether our decisions are relevant to competition in telecommunications markets.

Rationale for final decision: application of the quality IM to PQ and ID

- 5.134 We recognise those quality dimensions that come later in the fibre service lifecycle (availability and performance) are likely to be of enduring importance. As such, we will always apply these two dimensions to performance measures under ID and quality standards under PQ determinations.
- 5.135 In addition, we consider faults and customer service will always be relevant to the quality of FFLAS experienced by end-users and access seekers. Because of this, we will always apply these two dimensions to performance measures under ID.
- 5.136 We consider that our final decision gives stakeholders certainty that performance measures and quality standards will always be determined for at least "availability" and "performance" quality dimensions, and that performance measures will always be determined for "faults" and "customer services". It also gives us the flexibility as to which other dimensions we select to apply to PQ and ID regulation, based on several factors including any evidence that a particular dimension is (or is likely to be) problematic or otherwise requires quality regulation.

⁵⁹¹ 2degrees "Cross-submission on Fibre input methodologies draft decision" (17 February 2020), page 3.

The purpose of Part 6: section 162

- 5.137 The IM will promote incentives to invest in the network to ensure at least performance measures and standards are met for the availability and performance quality dimensions and any other dimensions we determine, such as provisioning. This will limit the regulated providers' ability to degrade network or service quality and thus extract extra profits.⁵⁹²
- 5.138 This decision reflects the fact that end-users are likely to always demand that regulated FFLAS are available and perform in line with expectations. Making customer service a mandatory dimension for ID helps ensure regulated providers are responding to the needs of access seekers and end-users across the FFLAS lifecycle. In addition, making faults mandatory for ID strengthens the incentives surrounding a quality dimension that directly impacts the end-user experience.
- 5.139 We consider our final decision gives us the flexibility to provide incentives around several aspects of the quality lifecycle that may be important to end-users at a particular time. It helps ensure that regulated providers are incentivised to supply FFLAS of "a quality that reflects end-user demands" at the time when the standards and measures are set (and thus, gives effect to the purpose at s 162(b)).

The purpose of IMs: section 174

- 5.140 We consider that the decision to make these dimensions mandatory promotes certainty for regulated providers. Our final decision provides certainty by signalling to stakeholders that we consider performance, availability, faults and customer service will always remain relevant and important to end-users.
- 5.141 The relevance of quality dimensions may change over time. For example, we anticipate that the provisioning dimension may become less important over time as fibre uptake levels slow or flatten. Selecting only the most relevant dimensions of the seven available allows us to reduce the regulatory burden associated with monitoring additional quality dimensions should changing market circumstances make this appropriate.

Rationale for final decision: differentiated quality requirements

- 5.142 Our final decision is that in setting quality requirements for PQ and ID, we may break down reporting requirements by geographic area, or by classes of end-users (such as business or residential) or access seekers. We may also differentiate by service such as layer 1 and layer 2 services, as different services may face different levels of competition in future.

⁵⁹² Section 162(d).

- 5.143 We consider that tailoring the regulatory instruments by setting different PQ and ID requirements could better achieve the purposes of Part 6. For example, this could help shed light on expenditure-quality trade-offs between different areas or customer segments.

Submitters' views on differentiated quality requirements

- 5.144 On the issue of differentiated quality requirements, Enable and Ultrafast submitted that they do not record customer segments in their systems and cannot identify the status of an end-user. For example, a service designed for business use may be taken by a residential end-user, and vice versa.⁵⁹³
- 5.145 If we were to request information be broken down in a particular way, we would consider whether that information is already recorded, or could be recorded, in regulated providers' systems. This will likely form part of the discussion at any stakeholder workshop we may hold as part of the ID-setting process, as discussed in paragraph 5.149. This breakdown may not be relevant or required for all measures. For instance, customer type may be known at installation based on order types but not recorded in a regulated provider's systems once fibre is installed and operational.
- 5.146 We also wish to clarify that in specifying the quality standards or performance measures that a regulated provider must meet, the Commission may set different requirements for different regulated providers.⁵⁹⁴ Northpower supported this decision as it recognises the differences in size, scale and complexity of the providers.⁵⁹⁵ However, we did not make this clear in our draft determination, so have amended the wording in the final determination.

How we plan to implement the quality IM in setting PQ and ID regulation

- 5.147 The following paragraphs set out our views and respond to submissions on issues that, while relevant to our approach to setting quality standards and performance measures, do not require quality IM decisions. This includes the PQ- and ID-setting processes, and quality standards beyond RP1.

⁵⁹³ Enable and Ultrafast "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paras 5.1-5.4.

⁵⁹⁴ Commerce Commission "Fibre input methodologies – Draft decision paper" (19 November 2019), page 418.

⁵⁹⁵ Northpower "Submission on Fibre input methodologies – Draft decision" (30 January 2020), para 5.

PQ- and ID-setting processes

- 5.148 The purpose of this section is to indicate to stakeholders how we plan to set quality regulation via PQ and ID. The PQ- and ID-setting processes will involve setting more detailed quality regulation by determining:
- 5.148.1 ID rules for all regulated providers, which may include quality performance measures and statistics (historical), as well as plans and forecasts about quality and service levels; and
 - 5.148.2 the PQ path for Chorus, which will include quality standards, as well as requirements for demonstrating compliance with quality standards.
- 5.149 In determining ID performance measures, we intend to seek views from interested parties, which may include holding a technical workshop on current fibre industry practices. This will include the ease of accurately generating quality reporting performance measures using current reporting systems and processes. We will also consider the costs and benefits of regulated providers upgrading or changing reporting systems and processes to generate accurate performance measures.
- 5.150 In determining PQ regulation, we intend to seek views from interested parties, such as regulated providers and access seekers, which may include holding a technical workshop. The purpose of this process will be to seek views on which quality dimensions should be applied as quality standards and how those quality standards should be set. The PQ standards we impose for RP1 may also be informed by Chorus' PQ expenditure proposals.
- 5.151 In addition, we will consider available information on the quality of regulated FFLAS currently or historically supplied by regulated providers. We will also consider the impact of any quality concerns or issues related to a particular quality dimension on end-users and access seekers.
- 5.152 Lastly, we will take into account any incentives regulated providers face to supply regulated FFLAS at a quality that end-users demand, as well as the linkages between expenditure and quality outcomes.

Submitters' views on PQ- and ID-setting processes

- 5.153 In its submission on our draft decision, Vector stated that “industry workshops would be highly beneficial in helping guide the discussion around quality metrics initially”.⁵⁹⁶ In addition, the joint access seekers proposed that “...the Commission

⁵⁹⁶ Vector Communications “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 65.

holds an industry workshop to work through the specifics, to effectively implement our proposed amendments to the regime.”⁵⁹⁷

- 5.154 We do not consider that we need to hold additional stakeholder workshops before publishing our final IM decisions, as we have already held workshops and had several rounds of submissions. Our view remains that workshops on more detailed matters would be more beneficial during the ID-and PQ-setting processes.

Quality standards beyond the first regulatory period

- 5.155 In our draft decision we explained that quality standards for RP1 would be specified in the PQ determination, rather than in the quality IM, and that we will seek views on these as part of the PQ process.⁵⁹⁸ At paragraph 5.43 we also explained that we anticipate the quality service levels in the UFB contracts are likely to be a useful starting point for seeking stakeholder views in RP1.
- 5.156 In terms of future regulatory periods, Chorus raised an issue with the lack of detail included in the draft reasons paper around how the PQ-setting process will work beyond RP1.⁵⁹⁹ We do not consider it is the role of the quality IM to set out the PQ process in detail, including how quality standards will be set beyond RP1. Instead, we have opted to determine the quality IM in a way that does not pre-determine the PQ-setting process, since this gives us more flexibility in our approach to each PQ-path reset.
- 5.157 The PQ process beyond RP1 will be informed by our observations on how the PQ process works for RP1, so that we can make any necessary adjustments or improvements. The quality IM allows for a range of approaches to be taken when we set PQ regulation as the dimensions are broad and therefore durable.

⁵⁹⁷ 2Degrees, Spark, Vocus and Vodafone “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 9.

⁵⁹⁸ Commerce Commission “Fibre input methodologies – Draft decision paper” (19 November 2019), page 421.

⁵⁹⁹ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 325.

Chapter 6 Final decisions: Cost of capital IM

Table 6.1 Summary of final decisions on the cost of capital IM

Issue	Final decision
Cost of Capital IM	The IM sets out the methodology that we apply when we determine the WACC rather than the previse value of WACC
Cost of debt	Estimate a benchmark cost of debt for regulated providers; this applies to the WACC methodology for PQ paths and ID.
Cost of debt	In relation to the risk-free rate, our final decision, which applies to the WACC methodology for PQ paths and ID, is that the IM specifies: <ul style="list-style-type: none"> • the process and methodology for estimating the risk-free rate; • the use of the return on New Zealand Government NZ dollar denominated nominal bonds as the proxy for the risk-free rate; • the use of prevailing rates in the risk-free rate estimation; • the use of the observed market yield to maturity of benchmark NZ government NZ\$ denominated nominal bonds; • the use of bid rates when estimating yields on government bonds; • that the observed market yields on the government bonds are averaged over three calendar months prior to when the cost of capital is being estimated (three-month determination window); • that the term of the risk-free rate will match the length of the regulatory period; • that the risk-free rate will be updated for each cost of capital estimation, including annually for ID; • that the risk-free rate estimation methodology will not change for negative real interest rates.
Cost of debt	Set a service-wide notional target credit rating using the S&P long-term credit rating of BBB; this applies to the WACC methodology for PQ paths and ID.
Cost of debt	Estimate the debt premium at each determination of the WACC using an historical average approach and a TCSD; this includes: <ul style="list-style-type: none"> • the use of a simple benchmark of NZ issued corporate bonds and a bond hierarchy; • the use of a five-year average of annual debt premium estimates; • the use of data on bonds with a five-year target term to maturity; • that a TCSD is estimated for longer dated bonds; • the use of data on bonds issued by corporates with a target credit rating of BBB; • reference to the Nelson-Siegel-Svensson (NSS) curve.
Cost of debt	Set a debt issuance and associated costs allowance of 20 basis points (0.20%) p.a. for a five-year regulatory period with an upward adjustment for three and four-year regulatory periods (on a p.a. basis).
Cost of debt	Calculate the TCSD with a formula that uses a fixed linear relationship to determine the additional debt premium associated with debt issued with an original maturity term of more than five years.

Issue	Final decision
Cost of equity	Our final decision is to calculate cost of equity using the simplified Brennan-Lally capital asset pricing model (SBL-CAPM).
Cost of equity	Our final decision is to take a service-wide approach when determining the cost of capital for regulated FFLAS, including a service-wide asset beta.
Cost of equity	We have estimated an asset beta of 0.50 for our final decision, based on historic estimates of average asset betas and our six-step approach to estimating the asset (and equity) beta value.
Cost of equity	We have estimated a value for the tax adjusted market risk premium (TAMRP) of 7.5% for our final decision. We round our estimate of TAMRP to the nearest 50 basis points.
Leverage	Set the leverage at 29% based on the average of the comparator set we use to estimate asset beta.
WACC percentile for PQ	To use the midpoint WACC (no uplift).
WACC percentile for ID	To publish the midpoint WACC and standard error.
Allocation of asymmetric risk	Allocate some Type I and Type II asymmetric risk to regulated fibre providers.
Regulated fibre providers subject to ID regulation only	Nothing is required in the IMs for regulated providers subject to ID only. We use the ID WACC to assess the profitability of fibre providers subject to ID only. When assessing their returns, the question will be whether their returns are commensurate with the risk they are bearing, including stranding risk.
Compensation for Type I asymmetric risk	Compensate for Type I asymmetric risk <i>ex-post</i> , as part of specifying PQ paths. Efficient costs of insurance premiums can be recovered alongside other opex as part of the BBM.
Compensation for Type II asymmetric risk	Retain unused assets in regulated markets in the RAB.
Compensation for Type II asymmetric risk	Allow for possible shortening of asset lives (or alternative depreciation profiles).
Compensation for Type II asymmetric risk	<p>Provide an annual <i>ex-ante</i> allowance calculated by using a 10 basis point discount rate applied to the allocated RAB (including accumulated losses). The allowance is implemented through cash flows.</p> <p>The allowance will not be retrospectively applied to the pre-implementation period</p> <p>Specify the allowance in the IMs.</p>

The purpose and structure of the chapter

6.2 This chapter is divided into sections that explain each of the parameters needed to estimate the cost of capital.

- 6.3 There are two main types of capital—debt and equity capital. Both have a cost from the perspective of the entity that is seeking funds from investors. For debt, it is future interest payments. For equity, it is the expectation of dividend payments by the firm, and where profits are retained and reinvested, the expectation of larger dividend payments by the firm sometime in the future.
- 6.4 The WACC reflects the cost of debt and the cost of equity, and the respective portion of each that is used to fund an investment.
 - 6.4.1 WACC is one of the key inputs under BBM regulation. The WACC estimate is used to calculate the allowed return on capital when specifying PQ paths. The WACC estimate also provides a benchmark for assessing the profitability of regulated providers under ID regulation.
 - 6.4.2 Our final decision is that the IM itself does not set the precise WACC value applied to regulated providers. Instead, the IM sets the methodology that we apply when we determine the WACC for use in specific regulatory contexts (eg, prior to the start of a PQ path). This approach enables us to use up-to-date market data to ensure that the most relevant information is used in determining each WACC estimate.
 - 6.4.3 We have selected a final methodology that determines both a vanilla and post-tax WACC. The type of WACC to use will depend on how the WACC is used in different regulatory contexts.
 - 6.4.4 This chapter covers:
 - 6.4.4.1 what the WACC and the cost of capital input methodology are;
 - 6.4.4.2 the requirements of the Act;
 - 6.4.4.3 the framework for making WACC decisions;
 - 6.4.4.4 a summary of our approach to estimating the cost of debt;
 - 6.4.4.5 a summary of our approach to estimating the cost of equity; and
 - 6.4.4.6 other WACC issues, including, leverage, taxation, WACC range, an uplift to reflect asymmetric consequences of under-investment, the appropriate WACC percentile for ID regulation and PQ, reasonableness checks, application of regulatory WACC.
- 6.5 We have also published an expert report alongside this paper:

- 6.5.1 Cost of capital for regulated fibre telecommunication services in New Zealand: Response to submissions on the Input Methodologies Draft Decision by Cambridge Economic Policy Associates (**CEPA**).⁶⁰⁰

The weighted average cost of capital

- 6.6 The cost of capital is the financial return investors require from an investment given its risk. Investors have choices and will not make investments unless the expected return is at least as good as the return they would expect to get from a different investment of similar risk. Because the actual cost of capital of regulated providers is not observable, we must estimate it. The cost of capital IM seeks to specify rules for the calculation of a reasonable and commercially realistic cost of capital given investors' exposure to risk.
- 6.7 The WACC reflects the cost of debt and the cost of equity, given the mix of debt and equity. Our final decision is to use a post-tax WACC and a vanilla WACC. The former includes the after-tax cost of debt; the latter includes the cost of debt before tax, as shown in the following equations.

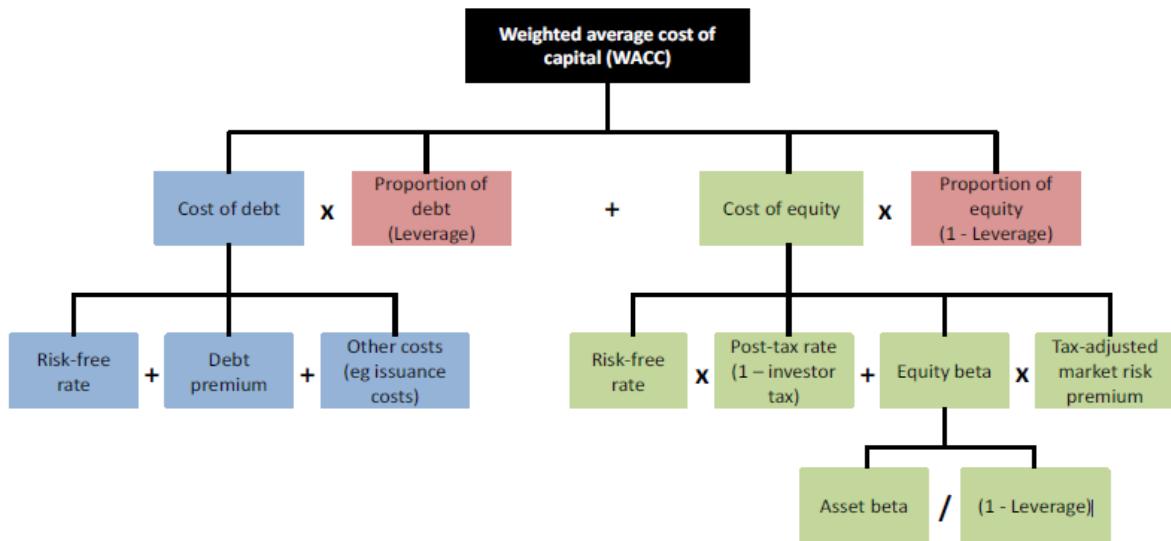
$$\text{Post-tax WACC} = \text{cost of debt (after tax)} \times \text{leverage} + \text{cost of equity} \times (1 - \text{leverage})$$

$$\text{Vanilla WACC} = \text{cost of debt} \times \text{leverage} + \text{cost of equity} \times (1 - \text{leverage})$$

- 6.8 Post-tax WACC estimates are more frequently used in New Zealand, and more easily understood by interested persons, than vanilla WACC estimates. However, the use of vanilla WACC estimates is consistent with our final IM's approach to regulatory tax for PQ. Accordingly, our final decision is to use vanilla WACC estimates for PQ, and both vanilla WACCs and post-tax WACCs for the purposes of ID regulation.
- 6.9 A number of parameters must be calculated to derive our estimates. These are as set out in Figure 6.1 below.

⁶⁰⁰ CEPA "Cost of capital for regulated fibre telecommunication services in New Zealand: Response to submissions on the Input Methodologies Draft Decision" (6 July 2020).

Figure 6.1 WACC and its parameters



- 6.10 The WACC is estimated because it cannot be observed directly. The relevant estimate is the market's view of the cost of capital for providing regulated FFLAS, not the cost of capital specific to one regulated provider, or a regulated provider's view of its cost of capital for regulated FFLAS.
- 6.11 If regulated providers have similar exposures to systematic risk, then we consider that we should, in principle, apply a 'benchmark' or regulated FFLAS-specific cost of capital for all regulated providers. On the other hand, if regulated providers have a materially different exposure to systematic risk then we should, in principle, apply a regulated provider-specific cost of capital for each regulated provider.

The cost of capital input methodology

- 6.12 Our estimate of the cost of capital IM comprises two parts.
 - 6.12.1 The first component is a methodology for calculating the WACC. The WACC is determined for regulated FFLAS and applies to all regulated providers of that FFLAS.
 - 6.12.2 The second component is the term credit spread differential (TCSD) (explained below), which is treated as a separate component because it will apply to qualifying firms only.
- 6.13 The cost of capital IM will produce estimates of the cost of capital for regulated FFLAS on a forward-looking basis. That is, it reflects expectations of the returns required in the future, which cannot be observed in advance. Our final decision is to use the estimate of the cost of capital to assess the profitability of regulated

providers (in ID regulation) and as an input in specifying PQ paths. It is also used in calculating the accumulated losses which is subject to a separate reasons paper that is coming later.

How we have decided to estimate the WACC component of the cost of capital IM

- 6.14 The estimation of the cost of capital is not a mechanical task. The available tools used to estimate the cost of capital are imperfect; the data can be hard to obtain or unreliable and can change over time; older data can be reinterpreted in new ways and newer data may call into question previous assumptions.
- 6.15 In determining the methodology for estimating the cost of capital which is reasonable and best gives, or is likely to best give, effect to the purpose in s 166 and the purpose statements for ID regulation⁶⁰¹ and PQ,⁶⁰² we have to exercise a degree of judgement.
- 6.16 Our final decision is that the cost of capital IM does not specify the cost of capital for regulated FFLAS directly. Rather, it sets out the methodology for determining the cost of capital for regulated FFLAS. Some parts of our final IM specify values for certain parameters, such as TAMRP, while other parts specify a methodology for obtaining estimates where information is constantly changing, such as interest rates. We explain in more detail how our final cost of capital IM estimates these parameters below.
- 6.17 In addition to estimating all of the relevant parameters, we consider that we must assess the mis-estimation risk associated with setting the WACC and whether the potential asymmetric costs of under-investment justify an adjustment to the WACC above our mid-point estimate. Our final decision is that no such adjustment is necessary as explained below.
- 6.18 Spark has raised a concern that the IM's and the price-quality determination may be disconnected and has given an example:⁶⁰³

..the Commission proposes to set specific WACC values in IMs that imply a specific allocation of risk between provider and end users and planned incentives, yet submissions highlight that key factors for the allocation of risk and incentives have yet to be determined. The current approach risks predetermining decisions that are properly made when considering proposals in the price-quality process, *ie* this is when key information that properly enables risk faced by LFCs to be aligned with WACC settings is available to the parties.

⁶⁰¹ Section 186.

⁶⁰² Section 192.

⁶⁰³ Spark “Fibre Input Methodologies: regulatory process and rules draft Cross submission” (19 June 2020) paragraphs 11 to 12.

Accordingly, we recommend that the Commission aligns related decisions by either:

- a. Specifying the wash-up mechanism in the RPR IM as requested, ensuring the allocation of risk and incentives through the wash-up is appropriately aligned with WACC parameters, or
- b. Not set specific WACC values such as the asset beta in the WACC IM, but instead set out the WACC methodology and principles it will apply to assure that risk, incentives, and return are aligned across the regulatory settings. For example, the Commission would retain the flexibility to modify the benchmark firms or select a low asset beta within the benchmark range where the wash-up methodology results in risk predominantly falling on end-users. The Commission could then set an aligned wash-up methodology and specific WACC parameters informed by the first price-quality review process. The approach would appropriately balance the certainty of setting out the WACC methodology with the flexibility to align specific WACC values with decisions made in the P-Q process

- 6.19 When setting IMs and separately setting price-quality paths, there are always matters which may be inter-linked, at least to some extent. This is a trade-off between the certainty IMs are meant to promote and maintaining sufficient flexibility to set a price-quality path (including a wash-up mechanism) which best promotes the purpose of Part 6. We have considered the specific example Spark has raised on the interrelationship between the wash-up mechanism and cost of capital. We have also previously considered the related issue of the inter-relationship of cost of capital with the form of control (whether a revenue cap or price cap) where a revenue cap allocates less demand risk to the regulated company. This example of a revenue cap is more significant than the wash-up mechanism given moving from an average weighted price cap to a revenue cap should be expected to lead to a more significant shift in demand risk; compared to varying the type of wash-up operated under a revenue cap. At that time, we concluded that no amendment to the cost of capital IM was required.⁶⁰⁴ Consequently we do not believe that these considerations are material enough to change our approach.
- 6.20 As part of Spark's submission we have seen no evidence as to the impact of a wash-up on our best estimate of the WACC for the purposes of price-quality controls. Given this we do not consider that specifying the wash-up mechanism in the RPR IM would better promote the purpose of Part 6. We have also decided to maintain our decision to set the relevant WACC values in the IMs given the above reasons and the attendant cost to certainty of setting values such as the asset beta outside of the cost of capital IM. However, we note that this does preclude us considering amendments to the WACC parameters between our statutory IM reviews and applying any changes to parameters to price-quality paths determined after those amendments if this is warranted by the particular circumstances.

⁶⁰⁴ Commerce Commission "Input methodologies review decisions Topic paper 4: Cost of capital issues" (20 December 2016), paragraphs 325 to 332.

- 6.21 We have conducted reasonableness checks to test whether our application of the IM will produce commercially realistic estimates of the cost of capital. The reasonableness checks are intended to help identify any potential anomalies in our estimates. We do not specify these reasonableness checks as part of the cost of capital IM.

Cost of debt

- 6.22 Debt is an important source of capital for many businesses. Our final decision is to estimate the cost of debt by observing the interest rate paid by the New Zealand Government, and the additional premium corporate borrowers pay to compensate investors for the additional risks of lending to them (relative to the Government debt). We also allow for the costs of issuing debt (for example, to cover roadshows and legal fees), and the cost of entering interest rate swaps to shorten the term of the debt and better align it to the length of the regulatory period.
- 6.23 Our final decision is to include the following parameters in the cost of debt:
- 6.23.1 the risk-free rate;
 - 6.23.2 the debt premium;
 - 6.23.3 TCSD; and
 - 6.23.4 debt issuance costs.⁶⁰⁵
- 6.24 The risk-free rate is the rate of interest expected when there is no risk of default. Debt issued by the New Zealand Government and denominated in New Zealand dollars is considered to be free of default risk. The rate of interest on government issued debt can generally be readily observed from trading on the debt market.
- 6.25 The debt premium is the additional interest rate, over and above the risk-free rate, required by suppliers of debt capital to compensate them for being exposed to the risks of default in lending to a firm, plus an allowance for the inferior liquidity of corporate bonds relative to government bonds. In general, the longer the firm wishes to borrow the debt for, the higher the debt premium that the firm has to pay to the suppliers of debt capital. The debt premium is also closely related to the firm's credit rating. The better the firm's credit rating, the lower the debt premium it has to pay to the suppliers of debt capital.
- 6.26 Firms incur costs when raising new debt. These costs are not reflected in the debt premium but are an inherent cost of raising the debt finance needed to support an

⁶⁰⁵ We are also including an allowance for swap costs as part of debt issuance costs.

ongoing business. We consider that these costs should be included in the cost of capital for regulated fibre providers.

- 6.27 Firms typically have a mix of debt maturities to manage refinancing risk, including issuing long-term debt. This spreads a firm's refinancing requirements over a longer period and reduces the amount of debt that needs to be refinanced in any given year. Reducing refinancing risks has benefits for end-users, but long-term debt typically has a greater cost than medium- or short-term debt.
- 6.28 Firms are able to manage movements in the risk-free rate by using interest rate swaps. An interest rate swap enables a regulated provider, if it wishes, to cover the cost of aligning the interest rate setting to the price setting. We consider that some degree of hedging activity by regulated providers can be beneficial to end-users, as it can enable regulated providers to both reduce their risk exposure and lower interest costs (to the extent that it reduces the term over which regulated providers have fixed interest payments). We have therefore included an allowance for the costs of entering interest rate swaps, as part of the debt issuance costs.
- 6.29 Unlike the risk-free rate, the debt premium cannot easily be hedged and consequently we allow for the additional debt premium associated with longer dated debt through the TCSD.

Cost of equity

- 6.30 Equity is the second main source of capital. The difficulties in estimating the cost of equity are greater than in estimating the cost of debt. The cost of equity, expressed as a rate of return, is the discount rate implicit in the price at which equity can be raised (given the investors' expectations of future cash flows which they will derive or have claim to). This discount rate cannot be directly observed or calculated because the investors' true expectations cannot be directly observed. Consequently, the cost of equity, and most of its components, have to be estimated based on an analytical model.
- 6.31 The cost of equity is higher than the cost of debt as equity holders take on more risk than debt holders because equity holders are the residual claimants, (taking account of the different taxation treatments that may apply). There is a significant variation in risk between firms in different sectors of the economy.
- 6.32 There are a number of methods to estimate the cost of equity including the Capital Asset Pricing Model (**CAPM**), the dividend growth model and the Fama-French three factor model. Of these, the CAPM is the most commonly used.
- 6.33 The CAPM proposes that the cost of equity can be modelled as comprising a risk-free component and a premium for risk. Under the CAPM, the size of the premium for risk increases in line with increases in the firm's exposure to systematic risk (with a

measure of this risk, referred to as beta). Systematic risk refers to market-wide risks which affect all risky investments. Non-systematic risk refers to risks which affect an individual company.

- 6.34 The Brennan-Lally CAPM (Dr Lally's adaptation for New Zealand circumstances of a CAPM model elaborated by Brennan) was developed to reflect New Zealand's taxation system. Specifically, it recognises the presence of imputation credits and the general absence of taxes on capital gains. There is an extended form of the Brennan-Lally CAPM and a simplified version, but it is the simplified Brennan-Lally CAPM (**SBL-CAPM**) that has become the dominant form of the CAPM used in New Zealand. Indeed, in New Zealand the term SBL-CAPM has become largely synonymous with the generic term CAPM, and the terms are frequently used interchangeably.
- 6.35 The market risk premium (**MRP**) represents the additional return, over and above the risk-free rate, that investors look for to compensate them for the risk of holding a portfolio of average risk (more precisely the market portfolio which is the average risk portfolio).
- 6.36 Under the SBL-CAPM, the MRP is adjusted for tax faced by the investor on equity returns. The standard version of the CAPM assumes that all sources of investment income are equally taxed at the personal level. This is not a good description of the New Zealand tax regime, because both capital gains and dividends are less onerously taxed than interest (the favourable treatment of capital gains tax is due to exemption of many investors and from dividend imputation). Consequently, the tax adjusted MRP (**TAMRP**) is used in estimating the cost of capital to recognise the favourable tax treatment of equity returns.
- 6.37 Beta is a measure of exposure to systematic risk. Systematic risk measures the extent to which the returns on a company fluctuate relative to the equity returns in the stock market as a whole. If an investment had no systematic risk (ie, it would show no correlation with returns on the market), its equity beta would be zero. If an investment in the equity of a company is of average risk, the equity beta will be 1. This means that the premium over the risk-free rate that equity investors expect will be the same as the average for the overall market (the TAMRP).
- 6.38 As the cost of capital is intended to be forward-looking, forward-looking betas are required. As there is no reliable way to forecast betas, we assume that historic beta estimates are indicative of future betas. Historic estimates of average betas are used as beta is expected to be relatively stable over time.

Other WACC parameters

- 6.39 Tax situations specific to particular investors do not, in principle, affect the cost of capital. Taxes are borne by the individuals themselves, not by the firms of which they

are shareholders. Therefore, the cost of capital IM does not provide for the tax circumstances of individual investors (accumulated tax losses, inability to use imputation credits). We mirror the statutory tax rate for corporate tax and the maximum prescribed investor rate under the Portfolio Investment Entities (PIE) regime for investor tax.

- 6.40 Leverage refers to the mix of debt and equity capital that is used to fund an investment. We use leverage in two places when estimating the cost of capital. One use is to re-lever the asset beta into an equity beta (and vice versa). The second use is to derive a WACC from the estimates of the cost of debt and the cost of equity.

Final Decision: estimating the term spread credit differential

- 6.41 Our final decision is that the cost of capital IM includes a TCSD allowance to compensate regulated providers for the additional debt premium that can be incurred from issuing debt with an original tenure longer than five years.
- 6.42 Although the TCSD is conceptually a component of the cost of capital, our final decision is that it is treated as an adjustment to cashflows and is only available to regulated fibre providers who have issued long-term debt to prudently manage their refinancing risks.
- 6.43 Our final decision is that the TCSD is calculated by way of a formula that combines:
- 6.43.1 the additional debt premium associated with each issuance of debt that has an original term to maturity in excess of the five-year debt premium (the ‘spread premium’),⁶⁰⁶ and
 - 6.43.2 a negative adjustment to take account of the lower per annum debt issuance costs that are associated with longer-term debt.⁶⁰⁷

Requirements of the Act

- 6.44 Section 176(1)(a)(i) of the Act sets out the required content of the IM for the cost of capital:

The input methodologies relating to fibre fixed line access services must include, to the extent applicable to the type of regulation under consideration,—

- (a) methodologies for evaluating or determining the following matters in respect of the supply of the fibre fixed line access services:
 - (i) cost of capital;

⁶⁰⁶ This debt is called ‘qualifying’ debt.

⁶⁰⁷ We assume that all debt issuance costs are fixed, irrespective of the original term of the debt.

- (ii) valuation of assets, including depreciation, and treatment of revaluations;
- (iii) allocation of common costs (for example, between activities, businesses, access seekers, regulated services, or geographic areas);
- (iv) treatment of taxation;

Decision-making framework

6.45 As with all the IMs, the IM for the cost of capital is intended to promote certainty for regulated providers, access seekers, and end-users in relation to determining the cost of capital for ID purposes and for PQ (consistent with s 174). The decisions must promote this purpose and be those that we consider best give, or be likely to best give, effect to the s 166(2) purposes in light of the purpose of the relevant regulatory instruments.

The promotion of the purpose of Part 6: section 162

- 6.46 In reaching our decisions on the cost of capital, our regulatory challenge is to determine the cost of capital for the supply of regulated FFLAS consistent with the cost of capital that would be faced by firms in workably competitive markets, ie, neither too high, nor too low, such that we best give, or are likely to best give, effect to the outcomes in s 162(a)-(d).⁶⁰⁸
- 6.47 Because the actual cost of capital of firms in workably competitive markets is not observable, we must make an estimate. Our cost of capital IM seeks to determine an estimate of a cost of capital that is reasonable and commercially realistic given investors' exposure to risk. This ensures expectations are for a real rate of return consistent with the outcomes in s 162 and with the principle of FCM that we are proposing to adopt for the IMs relating to the supply of regulated FFLAS.⁶⁰⁹
- 6.48 We consider that the most relevant outcomes of the s 162 purpose for the cost of capital IM are:
 - 6.48.1 section 162(a) – that regulated providers have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and
 - 6.48.2 section 162(d) – that regulated providers are limited in their ability to extract excessive profits.
- 6.49 The other outcomes specified in the s 162 purpose are:

⁶⁰⁸ The cost of capital faced by regulated providers in workably competitive markets is determined in the capital market which may be closer to a perfectly competitive market.

⁶⁰⁹ See **Chapter 2** for more details.

- 6.49.1 section 162(b) – that regulated providers have incentives to improve efficiency and supply FFLAS of a quality that reflects end-user demands; and
- 6.49.2 section 162(c) – that regulated providers allow end-users to share the benefits of efficiency gains in the supply of FFLAS, including through lower prices.
- 6.50 We consider that our cost of capital IM decisions do not directly promote the outcomes in s 162(b) and s 162(c). However, we consider that our decisions are still consistent with the outcomes in s 162(b) and s 162(c). As these outcomes are not directly promoted through our cost of capital decisions, we have not specifically discussed them as part of our reasoning for why our decisions best give, or are likely to best give, effect to the purpose of Part 6 in s 162.
- 6.51 The IM for determining the cost of capital must ensure that the expected returns from investing in regulated FFLAS are similar to other investments of comparable risk, so regulated providers have incentives to innovate and invest, and are limited in their ability to extract excessive profits.
- 6.52 If a regulated provider's returns are at least those that would be earned in investments of comparable risk, an investor will have an incentive to innovate and to invest, because any returns resulting from this activity would be expected to be at least the same as what would have been available from those activities in comparable markets. If returns are similar to those of comparable risk, those returns would not be expected to be excessive.
- 6.53 In reaching our decisions on the cost of capital, we aim to strike an appropriate balance between s 162(a) and s 162(d).⁶¹⁰ Due to the estimation difficulties described at paragraph 6.14, determining the cost of capital IM which is neither too high, nor too low, so that the outcomes in s 162(a) and s 162(d) are balanced appropriately, is a difficult task and one that involves significant amounts of judgement.
- 6.54 In the context of ID regulation, if the cost of capital is set too low, it might incorrectly suggest that a regulated provider was not limited in its ability to extract excessive profits. Equally, a cost of capital that is set too high would mask the regulated

⁶¹⁰ We note that this is consistent with our approach to electricity distribution services, gas pipeline services, specified airport services and Transpower New Zealand Limited under Part 4. See Commerce Commission "Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper" (December 2010), paragraphs H1.23-H1.25, Commerce Commission "Input Methodologies (Airport Services) Reasons Paper" (December 2010), paragraphs E1.23-E1.24, and Commerce Commission "Input Methodologies (Transpower) Reasons Paper" (December 2010), paragraphs 6.1.1-6.2.6.

provider's ability to extract excessive profits over the medium or long-term.⁶¹¹ This would be inconsistent with s 162(d) of the Act.

- 6.55 In the context of PQ, if the cost of capital is set too low, regulated providers might have insufficient incentives to innovate and invest because they might be unable to attract sufficient capital to undertake efficient investment, which would be inconsistent with s 162(a) of the Act. If we set the cost of capital too high, ie, inappropriately above the rate of return of an investment of equal risk in workably competitive markets, regulated providers' ability to extract excessive profits will not be limited, which would be inconsistent with s 162(d) of the Act and may give rise to over-investment.

The promotion of workable competition in telecommunications markets: section 166(2)(b)

- 6.56 We consider that the promotion of workable competition in telecommunications markets in s 166(2)(b) is best given effect to by setting a regulatory WACC consistent with a workably competitive market. This approach allows alternative suppliers to provide services to the extent that they are more efficient and minimises the potential for a distortionary impact on competition from an alternative WACC.
- 6.57 We have considered whether the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services under s 166(2)(b) is a relevant consideration in reaching our decisions for the cost of capital IM. The WACC has the potential to impact competition through its impact on investment and therefore is a relevant consideration in reaching our decisions for the cost of capital. Our best estimate of the cost of capital for regulated FFLAS should provide an expectation of a return which can attract investment necessary to compete for both the regulated providers and their potential competitors, at least cost to end-users.
- 6.58 We have also considered promoting workable competition in considering whether to apply an uplift to reflect asymmetric consequences of under-investment, as outlined in paragraphs 6.661-6.666.
- 6.59 In addition to an uplift not best giving effect to the purpose of Part 6 in s 162, we do not consider that an uplift would be to the long-term benefit of end-users given:
- 6.59.1 regulated providers would be able to extract excessive profits from the provision of regulated FFLAS through higher maximum revenues, thus not acting to the long-term benefit of end-users of telecommunications services; and/or

⁶¹¹ We note that, in the short-term, regulated providers may achieve above-normal profits if they outperform the objectives set by the regulator.

- 6.59.2 it may not provide any benefit through promoting competition where regulated providers can increase revenue while selectively maintaining lower prices where competition is most likely to arise.
- 6.60 Therefore, because applying an uplift would not best give effect to the purpose of Part 6 in s 162, nor promote competition in telecommunications markets for the long-term benefit of end-users of telecommunications services, our final decision is to not apply an uplift.

Balancing the promotion of the purpose of Part 6 with the promotion of workable competition in telecommunications markets in our final decisions on the cost of capital

- 6.61 As the promotion of workable competition is a relevant consideration in reaching our final decisions for the cost of capital, our final decisions for the cost of capital must best give, or be likely to best give, effect to both of the purposes in s 166(2).
- 6.62 As discussed in Chapter 2, section 166(2) does not establish a hierarchy between the promotion of the two outcomes. In reaching our decisions on the cost of capital, we consider that we have struck an appropriate balance between:
- 6.62.1 section 162(a) and s 162(d), which best gives, or is likely to best give, effect to the purpose of Part 6 in s 162; and
 - 6.62.2 section 166(2)(b), which best gives, or is likely to best give, effect to the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services.
- 6.63 We consider that all our final decisions in this chapter, together, would produce an estimate of a cost of capital that is reasonable and commercially realistic given investors' exposure to risk.
- 6.64 We have made each individual final decision in this chapter because we consider that each decision contributes towards our aim of determining an estimate of a cost of capital that is reasonable and commercially realistic given investors' risk. In combination, a cost of capital that best gives, or is likely to best give, effect to the s 166(2) purposes.
- 6.65 All our individual decisions have been made because we consider that they contribute towards our aim of determining an estimate of a cost of capital that best gives, or is likely to best give, effect to the s 166(2) purposes. We have not considered it necessary to specifically explain why each individual decision best gives, or is likely to best give, effect to the s 166(2) purposes. Rather, each decision, and our rationale for each decision is intended to contribute to our overall determination of an estimate of a cost of capital that best gives, or is likely to best give, effect to the s 166(2) purposes.

Cost of debt

- 6.66 The purpose of this section is to explain our decisions regarding the cost of debt, including each of the parameters that make up the cost of debt.
- 6.67 Debt is a source of capital for many firms. The cost of debt to a firm can be expressed as the sum of the risk-free rate – the rate at which the New Zealand Government can borrow – and the additional debt premium above the risk-free rate the firm must pay due to a lender’s assessment of the firm’s risk of default compared to the risk-free rate. The cost of capital IM also includes an allowance for the costs of issuing debt. Therefore, the cost of debt is as follows:

$$\text{Cost of debt} = \text{risk-free rate} + \text{debt premium} + \text{debt issuance costs}$$

- 6.68 In this section we discuss our proposals for the following components of the cost of debt:
- 6.68.1 benchmark cost of debt;
 - 6.68.2 risk-free rate;
 - 6.68.3 debt premium;
 - 6.68.4 compensation for debt issuance costs;
 - 6.68.5 TCSD; and
 - 6.68.6 credit rating.

Benchmark cost of debt

- 6.69 Our final decision is to estimate a benchmark cost of debt; this applies to the WACC methodology for PQ paths and ID. The purpose of the benchmark cost of debt is to provide for the debt financing costs of an efficient regulated provider.
- 6.70 Our benchmark cost of debt methodology uses prevailing rates in the risk-free rate estimation, matches the term of the risk-free rate to the regulatory period, and uses a five-year average of annual debt premium estimates.

We estimate a benchmark cost of debt, including for the first regulatory period

- 6.71 Some submitters provided views on our risk-free rate and cost of debt methodology and, in particular, on the difference between the allowed benchmark and actual cost of debt of regulated suppliers.

- 6.71.1 ENA submitted “that the approach to determining the risk-free rate and cost of debt (..) does not compensate EDBs for an efficient cost of debt”.⁶¹²
- 6.71.2 Atlas compared the draft decision to Chorus’ actual cost of debt, “...the draft decision WACC example includes a notional cost of debt of 2.92% derived from the current low interest rates. That compares with actual cost of debt for Chorus of 5.75%, which reflects the historic contractual and regulatory status of Chorus”.⁶¹³
- 6.71.3 Vector submitted that “the significant delta between the Commission’s assumed cost of debt and Chorus’ actual debt costs highlights the perverseness of the Commission’s cost of debt assumptions and the inconsistency of the approach with typically efficient treasury management practice.”⁶¹⁴
- 6.72 Atlas also considered that, for the first regulatory period, it is appropriate to incorporate an embedded cost of debt in the allowed cost of debt. Atlas submitted:
 615 616
- ... that regulated companies that have full visibility of their forward regulatory arrangements can be expected to synchronise their embedded cost of debt alongside a known regulatory cycle.
- ...However, absent a known regulatory cycle, these arrangements carry material cost and risk and we believe it is entirely appropriate that, for the initial regulatory period, the commission incorporates the embedded cost of debt in the calculation of allowed returns.
- 6.73 We have considered these submissions and concluded that the benchmark cost of debt best gives effect to the s 166(2) purposes and is also appropriate for the first regulatory period.
- 6.74 The cost of capital IM seeks to specify rules for the calculation of a reasonable and commercially realistic cost of capital given investors’ exposure to risk, see paragraph 6.6.

⁶¹² ENA “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 5.

⁶¹³ Atlas Infrastructure “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 1; Vector Communications Limited “Cross-submission on Fibre input methodologies draft decision” (18 February 2020), para 29.

⁶¹⁴ Vector Communications Limited “Cross-submission on Fibre input methodologies draft decision” (18 February 2020), para 29.

⁶¹⁵ Atlas Infrastructure “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 1.

⁶¹⁶ When the cost of debt allowance is set to cover the actual cost paid by a company on its borrowings, this is often referred to as the ‘embedded debt’ approach.

- 6.75 The relevant estimate is the market's view of the cost of capital for providing regulated FFLAS, not the cost of capital specific to one regulated provider, or a regulated provider's view of its cost of capital for regulated FFLAS, see paragraph 0. This also applies to the cost of debt estimate.
- 6.76 Our benchmark cost of debt methodology includes for both PQ and ID regulation:
- 6.76.1 prevailing rates in the risk-free rate estimation;
 - 6.76.2 matching the term of the risk-free rate to the regulatory period; and
 - 6.76.3 a five-year average of annual debt premium estimates.
- 6.77 We consider that a benchmark cost of debt would strike an appropriate balance between the outcomes in s 162(a) of regulated providers having incentives to innovate and to invest, and s 162(d) of regulated providers being limited in their ability to extract excessive profits, thus best giving effect to the purpose of Part 6 in s 162, while still promoting workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services under s 166(2)(b).
- 6.78 To best give effect to the s 166(2) purposes, we must consider the alternative to a benchmark cost of debt estimate. In our view, the main alternative is to use the regulated provider's actual, or embedded, cost of debt. A benchmark cost of debt is specified as, if regulated providers' actual costs of debt were used, they may have less incentive to maintain an appropriate cost of debt given the costs would be compensated through the WACC, leading to potentially adverse implications for end-users.
- 6.79 Overall, and for the reasons we give at paragraphs 6.82 to 6.343.4, we consider that this cost of debt methodology better meets the purpose statement than an actual cost of debt given that it better provides for incentives to invest whilst limiting the ability to extract excessive profits.
- 6.80 Our decision is to apply our benchmark cost of debt estimate, including for the first regulatory period.

Risk-free rate

Summary of final decision

- 6.81 In relation to the risk-free rate, our final decision, which applies to the WACC methodology for PQ paths and ID, is that the IM specifies:
- 6.81.1 the process and methodology for estimating the risk-free rate;

- 6.81.2 the use of observed market bid yields to maturity of benchmark NZ government NZ dollar denominated nominal bonds;
- 6.81.3 the use of a prevailing rates approach (as opposed to an historical average);
- 6.81.4 that the observed market yields on the government bonds are averaged over three calendar months prior to when the cost of capital is being estimated (three-month determination window);
- 6.81.5 that the term of the risk-free rate will match the length of the regulatory period;
- 6.81.6 that the risk-free rate will be updated for each cost of capital estimation, including annually for ID; and
- 6.81.7 that the risk-free rate estimation methodology will not change for negative real interest rates.

Explanation of the risk-free rate

- 6.82 The risk-free rate is the interest rate that an investor would expect to earn by holding a risk-free asset. We use the risk-free rate when estimating both the cost of debt and the cost of equity.
- 6.83 In practice, the risk-free rate cannot be observed; it is usually approximated by the return on a very safe asset such as a government bond.
- 6.84 When selecting the risk-free rate, the first step is therefore to identify a suitable proxy. Depending on the proxy chosen, the second step is to decide whether to use the prevailing risk-free rate or an historical average of the risk-free rate. The third step is to decide whether to use spot rates or yields to maturity. The fourth step is to determine the timing and period of estimation from the proxy. The final step is to determine the appropriate maturity of the rate. Each of these issues is discussed in turn below.

Proxy for the risk-free rate

- 6.85 Our final decision is to adopt a risk-free rate estimation using the return on New Zealand Government NZ dollar denominated nominal bonds as the proxy for the risk-free rate.
- 6.86 We consider that a good risk-free rate proxy should be (i) virtually free of risk, (ii) liquid, (iii) free of restrictions on trade, and (iv) not have characteristics other than its returns distribution that attracts or discourages investors.

- 6.87 We consider that benchmark New Zealand Government bonds best fulfil these conditions and are, therefore, the best proxy for the risk-free rate.
- 6.88 Debt issued by the New Zealand Government and denominated in New Zealand dollars is considered to be free of default risk. The rate of interest on government issued debt can generally be readily observed from the trading on the debt market.
- 6.89 We and most other regulators have traditionally employed their respective government's local currency denominated bonds as the relevant proxy for the risk-free rate.
- 6.90 This decision remains unchanged from our draft decision. Chorus submitted in support of our draft decision on the risk-free rate, including using the return on NZ government bonds as a proxy, and no submitters raised concerns.⁶¹⁷
- 6.91 Our final decision is to adopt a risk-free rate estimation using the return on New Zealand Government NZ dollar denominated nominal bonds as the proxy for the risk-free rate. We consider that the most suitable proxy for the risk-free rate in New Zealand continues to be the New Zealand Government bond rate.

Prevailing rates for the risk-free rate estimation

- 6.92 Our final decision is to use the prevailing approach to estimate the risk-free rate element of the cost debt; this applies to the WACC methodology for PQ paths and ID.
- 6.93 The risk-free rate can be estimated by reference to average historical interest rates (for example, the last ten years to proxy the long-term average risk-free rate); or prevailing interest rates (for example, based on rates around the time the cost of capital is determined for each regulatory period).
- 6.94 Using historical rates reflects long-term average actual risk-free rates and will lead to estimated costs of equity and debt which tend to be relatively stable over time. In a price setting context, this relative stability will tend to lead to relatively stable returns to regulated providers and prices to end-users over time. However, this apparent stability could blunt the signals from structural changes in the financial markets with respect to new investment in infrastructure, as significant changes in interest rates only slowly affect the specified cost of capital.
- 6.95 The use of prevailing rates will lead to estimated costs of equity and debt which more closely reflect changes in expectations in the financial markets. That is, they are more up-to-date estimates of interest rates and therefore the cost of capital. In a price setting context, using current rates means changes in expectations in the financial markets will be signalled more rapidly to regulated providers and end-users.

⁶¹⁷ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), para 204.1.

- 6.96 While we recognise that there is likely to be more volatility under a prevailing rates approach from one regulatory period to the next, we consider that the expectation of returns under this approach provides a better investment signal than under the historical rates approach. We therefore consider that using prevailing rates over historical rates provides more appropriate investment incentives.
- 6.97 We consider that a regulated provider can seek to manage volatility in the risk-free rate by using the interest rate swap market. We therefore do not consider that the variability in the risk-free rate is a significant problem for regulated providers.⁶¹⁸
- 6.98 Businesses are able to hedge their interest rate exposure for the risk-free rate using the interest rate swap market. Swaps can be used to fix a regulated provider's interest rate payments such that they broadly match the risk-free rate (which is set by us for the length of a regulatory period). This is despite year-by-year variations in market government bond yields (which we use as a proxy for the risk-free rate).⁶¹⁹
- 6.99 The existence of this swap market, and the ability of regulated providers to use it to hedge the majority of their interest rate exposure, means that the use of a prevailing regime for the risk-free rate does not create a material risk of breaching the NPV=0 principle. The ability to use the swap market means that this is the case even if firms undertake staggered debt issuances over a longer period of time.
- 6.100 We note that firms may not be able to 'fully' hedge their exposure to the risk-free rate especially for investments during the regulatory period with unknown timing. However, a complete hedging approach is unlikely to be efficient practice in any case, as there may be significant costs associated with 'fully' eliminating interest rate risk.
- 6.101 Our view is the interest rate associated with the majority of a firm's issued debt can be hedged using the swap market and we are providing a reasonable allowance for the cost of that hedging, as we explain at paragraph 6.268. We also consider that firms would not be able to fully hedge their exposure to the risk-free rate for new investments under a trailing average; this would especially be true for large investments.
- 6.102 We consider that using a three-month determination window reduces the possibility of the market being distorted if there are significant hedging activities by regulated

⁶¹⁸ We note there is a separate issue on whether this volatility affects the price paid by end-users. Although price stability is a key consideration for end-users, we also do not consider that the potential for volatility in the cost of debt by using a prevailing risk-free rate is sufficiently large to justify a trailing average approach.

⁶¹⁹ Firms will not be able to completely hedge their exposure because the swap rates and the risk-free rate are not exactly the same.

providers. We consider that distortions are a possible concern for a one-month determination window.

- 6.103 We consider that the use of prevailing rates best gives effect to the s 166(2) purposes through providing better incentives to invest than the use of historic rates or a blend of prevailing and historic rates. Our view is that the relevant consideration for determining whether we are promoting outcomes consistent with those produced in workably competitive markets is whether firms can be expected to achieve a normal return on their investment. A normal return is expected when *ex ante* the NPV of the investment and subsequent cashflows equals zero using the WACC as a discount rate.⁶²⁰
- 6.104 The advantages of using a trailing average approach for the full cost of debt appear slightly stronger in the context of ID than for a PQ path. A more stable estimate of WACC may provide benefits to interested persons when assessing regulated provider profitability using disclosed information.⁶²¹
- 6.105 However, we do not consider this benefit would be substantial in assessing profitability.
- 6.106 We note and agree with Dr Lally's view that any assessment of *ex-post* profitability should take place over a number of years.⁶²² This ensures that any conclusions are not overly influenced by one-off factors in particular years that may give a false sign of excessive profitability. When assessing profitability over a longer period of time the advantages of a trailing average over a prevailing approach become more limited.
- 6.107 We are therefore applying the same WACC methodology for ID as for PQ paths. Any benefits in applying a trailing average for the full cost of debt for ID do not warrant the additional complexity that arises if the approach for ID diverges from the approach for PQ.⁶²³

⁶²⁰ The equivalence of the present value of revenues and present value of costs is often referred to by the term 'NPV=0', which recognises that if this equivalence holds, then the net present value (NPV) of the revenues less the costs is zero. We used the term NPV=0 extensively when originally setting the Part 4 IMs in 2010.

⁶²¹ In the event that a prevailing approach is used, and a business smooths its prices, excess returns may be observed for a single year, although they would not necessarily be as a result of excessive pricing. See Martin Lally "Review of further WACC issues" (report prepared for the Commerce Commission, 22 May 2016), page 13-14.

⁶²² Martin Lally "Review of further WACC issues" (report prepared for the Commerce Commission, 22 May 2016), page 13-14.

⁶²³ Martin Lally "Review of further WACC issues" (report prepared for the Commerce Commission, 22 May 2016), page 10-11.

6.108 This decision to use the prevailing approach to estimate the risk-free rate element of the cost debt, applied to the WACC methodology for PQ paths and ID, remains unchanged from the draft decision.

6.109 Chorus submitted in support of our draft decision.⁶²⁴

6.110 Some submitters expressed concern with our prevailing rates approach to estimating the risk-free rate.⁶²⁵

6.111 The investor Black Crane Capital, disagreed and proposed a blended average rate of historic and prevailing rates.⁶²⁶

6.112 Unison recommended that we review our methodology and submitted that:⁶²⁷

we do not observe such sharp changes in prices in workably competitive markets, because businesses are setting more stable prices based on long-term averages.

6.113 Vector recommended “the regular updating of the cost of debt based on a portfolio throughout the regulatory control period” as it considers that “the regular updating of the cost of debt portfolio to create a trailing average”: ⁶²⁸

6.113.1 ensures stability with prices over time; and

6.113.2 is the approach adopted by Ofgem, the Australian Energy Regulator (AER), and almost all US public utility commissions.

6.114 Although we recognise there are some benefits from a trailing average or blended approach, for the reasons we have given above at paragraphs 6.93 to 6.107, we consider that estimating the risk-free rate by reference to average historical interest rates or, equivalently, trailing rates is less appropriate.

6.115 We note that in workably competitive markets historical debt costs can vary due to variations in debt raising decisions. However, only the current cost of debt is relevant for investment and pricing decisions, where this reflects current and forward-looking debt costs. There is also a difference between underlying costs and prices to consumers. In a regulatory price setting context there are various

⁶²⁴ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 204.2.

⁶²⁵ ENA “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 5; Unison “Submission on Fibre input methodologies – Draft decision” (30 January 2020), pages 2 – 3; Vector Communications “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 41.

⁶²⁶ Black Crane Capital “Fibre emerging views submission” (18 July 2019), page 4.

⁶²⁷ Unison “Submission on Fibre input methodologies – Draft decision” (30 January 2020), pages 2 – 3.

⁶²⁸ Vector Communications “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 41.

smoothing mechanisms available to manage price changes to consumers, and this will be particularly true for Chorus where we have a specific wash-up mechanism and an accumulated losses regime.

- 6.116 We also note that the AER made it clear that there are trade-offs between the two approaches and that they consider the prevailing rates approach does have advantages in encouraging efficient investment and promoting outcomes consistent with a workably competitive market.⁶²⁹
- 6.117 Given the trade-offs between the two approaches, different regulatory frameworks may also result in a tendency towards different choices.⁶³⁰
- 6.118 Given our statutory framework and purpose statement, we consider that the benefits of moving to a trailing average regime would not outweigh the disadvantages. This is particularly as the prevailing rates approach better promotes incentives to invest. Also, under a trailing average approach, the allowed cost of debt is nearly always above or below the prevailing rate and providers would likely demand arrangements that advantage them, that is, they argue for switching to a prevailing rates estimation approach when interest rates increase and to a trailing average approach when interest rates decrease. Switching between a prevailing and trailing average approach would potentially also provide a windfall gain to suppliers.
- 6.119 Our final decision is to use the prevailing rates approach to estimate the risk-free rate element of the cost debt. Using prevailing rates best gives effect to the s 166(2) purposes through providing better incentives to invest than historical rates or a blend of prevailing and historical rates. The prevailing rates approach, therefore, better promotes section 162(a). The prevailing rates approach also limits the potential for a windfall gain to suppliers.

We use the observed market yield to maturity of benchmark NZ government bonds

- 6.120 Our final decision is to use the observed market yield to maturity of benchmark NZ government NZ\$ denominated nominal bonds, to approximate spot rates, when estimating the cost of capital.
- 6.121 We interpolate the yield to maturity on two benchmark New Zealand Government bonds (that straddle the target maturity period) to approximate the risk-free rate in the SBL-CAPM.⁶³¹ ⁶³² The theoretically correct approach would be to use spot rates

⁶²⁹ AER "Final decision Jemena distribution determination 2016 to 2020: Attachment 3 – Rate of return" (May 2016).

⁶³⁰ For example, a framework which has a stronger focus on the finance ability of regulated suppliers compared to the investment incentives may result in stronger reasons to apply a trailing average.

⁶³¹ A bond's yield to maturity, also known as its internal rate of return, is the discount rate that sets the current price of the bond equal to the discounted value of the promised future payments on the bond.

⁶³² Benchmark New Zealand government bonds usually pay coupons every six months.

(sometimes referred to as zero coupon rates) instead, ie, the rates that would apply to a bond that delivers a single payoff at maturity.

- 6.122 When using the yields to maturity on coupon paying bonds rather than spot rates (zero coupon rates), the resulting estimates of the cost of capital will be biased downward or upward depending on whether the yield curve is upward or downward sloping. Such inaccuracies are likely to be greatest for low-risk investments because the NPV of such investments is more sensitive to changes in the risk-free rate than for risky projects, which will have a larger risk premium.⁶³³
- 6.123 We acknowledge that, in theory, we should use spot rates to estimate the risk-free rate, rather than a linearly interpolated yield to maturity. However, yields to maturity are more readily obtainable than spot rates as the NZ government does not issue zero coupon bonds (most practitioners rely on financial institutions to estimate the spot rates).⁶³⁴
- 6.124 For this reason, we use yields to maturity on NZ government coupon paying bonds when estimating the cost of capital. We note that in a previous consultation on the cost of capital in respect of the IMs affecting suppliers of electricity distribution services and gas pipeline services, regulated under Part 4, several interested persons acknowledged that they use and would advise us to use yields to maturity when estimating the cost of capital.⁶³⁵
- 6.125 This decision remains unchanged from our draft decision. We did not receive submissions on this point. Our final decision is to use yield to maturity as an approximation of spot rates due to the difficulties in obtaining spot rate data.

We use bid rates when estimating yields on government bonds

- 6.126 Our final decision is to use bid rates rather than mid-rates when estimating yields to maturity on government and corporate bonds.
- 6.127 Bid rates provide a small benefit to regulated providers which are likely to offset (although to an unknown extent) the potential impact from ‘new issue premiums’. We take this effect into account as part of our decision to provide an allowance of 20 bps (0.20%) for debt issuance costs, as we explain at paragraph 6.299.

⁶³³ NPV refers to the present value of future cash flow less the initial investment.

⁶³⁴ As there is no market standard approach to estimating zero coupon curves, estimates of the zero coupon rate for a given tenor will almost certainly vary across financial institutions.

⁶³⁵ Commerce Commission “Input methodologies (electricity distribution and gas pipeline services) reasons paper” (22 December 2010), para H4.20.

We use a three-month determination window

- 6.128 Our final decision is to estimate the risk-free rate using a three-month average of prevailing interest rates at the time each PQ and ID WACC determination is made.⁶³⁶
- 6.129 We consider that a three-month determination window is appropriate to protect against anomalous market conditions. We do not consider that using a three-month determination window would have distortionary effects if there are significant hedging activities by regulated providers.
- 6.130 This decision remains unchanged from the draft decision.
- 6.131 Chorus submitted in support of our draft decision to use a three-month determination window in the risk-free rate estimation.⁶³⁷
- 6.132 Unison referred to our draft decision to use a three-month determination window and submitted that estimating cost of debt and equity based on short-term measures of risk-free rates exposes consumers to fluctuations in interest rates and prices.⁶³⁸
- 6.133 We do not consider that estimating the risk-free rate based on a three-month average of prevailing interest rates at the time of each WACC determination will have distortionary effects. Chorus is the only FFLAS provider likely to engage in hedging activities and even if this coincides with other sectors, we consider that a three-month determination window will protect end-users against anomalous market conditions. As noted above at paragraph 6.131, Chorus itself supports the three-month determination window.
- 6.134 Our final decision is to estimate the risk-free rate using a three-month average of prevailing interest rates at the time each PQ and ID WACC determination is made.

We match the term of the risk-free rate to the regulatory period for PQ and ID regulation

- 6.135 For PQ and ID regulation, our final IM decision is to match the term of the risk-free rate to the length of the regulatory period. This will result in a three-year risk-free rate for the first regulatory period,⁶³⁹ followed by a three to five year risk-free rate, dependent on the length of future regulatory periods.⁶⁴⁰

⁶³⁶ The observed market yields on the government bonds are averaged over three calendar months prior to when the cost of capital is being estimated (three-month determination window).

⁶³⁷ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 204.3.

⁶³⁸ Unison “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 2.

⁶³⁹ Section 207(1).

⁶⁴⁰ Section 207(2).

6.136 Two LFCs (Enable and UltraFast), and the investor Black Crane Capital, raised concerns with our emerging views proposal to match the term of the risk-free rate to the regulatory period, advocating a term of ten years or more. In support of this, these stakeholders submitted on the emerging views paper that:

6.136.1 the term should match the useful life of the underlying assets and firms' actual debt structuring behaviour;⁶⁴¹ and

6.136.2 the term of the risk-free rate should reflect the investment horizon that investors of infrastructure typically have, favouring a ten-year term.⁶⁴²

6.137 According to these submitters, therefore, the term of the risk-free rate which matches the regulatory period is too short and would undercompensate regulated providers.

6.138 We consider that these submissions to the emerging views paper overlook the following considerations.

6.138.1 We need to balance avoiding over and under compensation, and ensuring regulated providers have an opportunity to earn a normal rate of return consistent with the outcomes promoted in s 162(a) and (d) of the Act and the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services in s 166(2)(b).⁶⁴³

6.138.2 Regulated providers that are subject to PQ regulation can reset their prices at the end of each regulatory period to reflect changes in the risk-free rate if this has altered the cost of capital.

6.138.3 Firms can use interest rate swaps to shorten the interest rate re-pricing period or hedge the risk-free rate component of their debt portfolios and that the use of interest rate swaps is widespread.

We match the term of the risk-free rate to the regulatory period for PQ regulation

6.139 Matching the term of the risk-free rate to the regulatory period ensures a normal rate of return.

6.139.1 A fundamental concept in finance is that the interest rate applied to a set of cashflows should reflect the risk, and the term, of those cashflows. To illustrate, consider the pricing of a zero-coupon five-year bond. The only discount rate that will correctly price this bond is the five-year spot rate.

⁶⁴¹ Enable and Ultrafast Fibre "Fibre emerging views submission" (18 July 2019), section 7.

⁶⁴² Black Crane Capital "Fibre emerging views submission" (18 July 2019), page 4.

⁶⁴³ Section 162.

Applying an interest rate with a term other than five years would generate either windfall gains or losses to the holder of the bond by mispricing it. The precise outcome will depend on the term structure of interest rates.

- 6.139.2 In the PQ regulatory context, we will typically be specifying regulated providers' prices or revenues, or evaluating returns over a given horizon — the regulatory period. Matching the term of the risk-free rate to the term of the regulatory period ensures there is no expectation that regulated providers subject to PQ will earn profits that are greater (or lower) than a normal rate of return over the regulatory period.⁶⁴⁴
- 6.139.3 The risk-free rate may either increase with term or decrease with term. When the risk-free rate declines with term, there is said to be an 'inverse yield curve'. That is, long-term interest rates are lower than short-term interest rates. A 'positive yield curve' occurs when government stock with a longer term has a higher rate of interest than government stock with a shorter term (for example, ten years versus five years). Higher long-term rates may be due to the uncertainty about future short-term rates, an expectation that future rates will rise and the uncertainty about future inflation, which is greater for long-term bonds.
- 6.139.4 Setting the risk-free rate to a term longer (or shorter) than the regulatory period may provide gains or losses depending on the term structure of interest rates. With a positive yield curve, it is in the interests of regulated providers for the cost of capital to be based on a longer-term rate, but the opposite is the case when there is an inverse yield curve.

6.140 Regulated providers subject to PQ have the power to reset prices.

- 6.140.1 We will reset the allowed revenue at the end of the regulatory period to reflect the change in the risk-free rate.
- 6.140.2 Regulated businesses can use swaps to match their debt costs to the regulatory allowance. Regulated providers can also adjust their prices at the end of each regulatory period to reflect the change in the revenue allowance, including to reflect changes in the risk-free rate if this has altered the cost of capital.⁶⁴⁵ Through the regular resetting of allowed revenues, the premium for uncertainty over the level of long-term interest rates is being borne by end-users users, rather than regulated providers. Accordingly, regulated providers' allowed revenues should not reflect a

⁶⁴⁴ Martin Lally "Regulation and the choice of the risk-free rate" (2004) 17 Accounting Research Journal 18.

⁶⁴⁵ Martin Lally "The weighted average cost of capital for electricity lines businesses" (report prepared for the Commerce Commission, September 2005), pages 29-30.

premium for the uncertainty of risk-free rates beyond the length of the regulatory period.

6.141 Regulated providers can use interest rate swaps.

- 6.141.1 We note that firms have a mix of debt maturities to manage refinancing risk, including long-term debt. This spreads a firm's refinancing requirements and reduces the amount of debt that needs to be refinanced in any one year. Reducing refinancing risks has benefits for end-users, but long-term debt typically has a greater cost (specifically a greater debt premium) than medium- or short-term debt.
- 6.141.2 The use of fixed rate long-term debt to manage refinancing risk also fixes a firm's interest rate for the term of the loan. But many firms want to manage their interest rate risk, often for shorter terms than the term of the loan. Therefore, the firm enters into an interest rate swap, typically at the same time as the debt finance is raised, to shorten the period for which their interest rate is fixed. This can result in a lower rate of interest.
- 6.141.3 In other words, firms can use interest rate swaps to re-price their interest costs (earlier than the maturity date of their debt) and lower their overall interest cost. Through the use of interest rate swaps firms can enjoy the benefits of long-term debt (secured funding and reduced refinancing risk) without having to pay the full cost of long-term debt finance.
- 6.141.4 Firms use interest rate swaps to hedge the risk-free rate component of their debt portfolios.⁶⁴⁶ This leaves the debt premium component matched to the term to maturity that the debt was originally issued for. Interest rate swaps are widely used in this way. This was evidenced in the information on debt profiles that we obtained from suppliers of electricity distribution services and gas pipeline services, regulated under Part 4, in 2010. Specifically, this showed that the interest rate re-pricing period was shorter than the average term to maturity of the debt portfolio. That is, firms were using interest rate swaps extensively. Many had an interest rate re-pricing period that was less than five years, with the weighted average interest rate re-pricing period being 3.3 years in 2010, which is much shorter than the term of the regulatory period of five years applied to suppliers of electricity distribution services and gas pipeline services.

⁶⁴⁶ Julian Franks, Martin Lally and Steward Myers "Recommendations to the New Zealand Commerce Commission on an Appropriate Cost of Capital Methodology" (report prepared for the Commerce Commission, 18 December 2008), para 48.

6.141.5 We also note that in the surveys undertaken in 2009 and 2010, the majority of regulated suppliers subject to Part 4 only issue debt for periods of up to five years.⁶⁴⁷

6.141.6 In our judgement, the widespread availability and use of interest rate swaps means the term of the risk-free rate should not exceed the term of the regulatory period (and should not be set at ten years).

Conclusion - the appropriate term of the risk-free rate for PQ

6.142 The period of focus for PQ regulation is the regulatory period, not the life of the asset or business; The first regulatory period is a three-year regulatory period, followed by three to five-year regulatory periods.^{648 649}

6.143 Setting the term of the risk-free rate equal to the term of the regulatory period ensures that regulated providers can be compensated for the risk they are exposed to during the regulatory period and that regulated providers are able to have the expectation of earning a normal return in the long run. The regulated provider also knows what the risk-free rate is for the duration of the regulatory period and can plan and manage its business accordingly.

6.144 Setting the term of the risk-free rate at ten years, when there is an inverse yield curve, would under compensate regulated providers. Conversely, when there is a positive yield curve, a ten-year term of the risk-free rate would over-compensate regulated providers.

6.145 When we reset allowed revenue at the end of each regulatory period to reflect changes in WACC, including changes in interest rate, the premium for uncertainty in long-term risk-free rates is borne by end-users, not regulated providers. The use of a higher risk-free rate with a term longer than the regulatory period would compensate regulated providers for an uncertainty they do not bear.

6.146 New Zealand regulated providers make widespread use of interest rate swaps to manage interest rate risk. As regulated providers can and do shorten the interest rate re-pricing period through the use of interest rate swaps, the term of the risk-free rate should not be based on a ten-year term.

⁶⁴⁷ Commerce Commission “Input methodologies (electricity distribution and gas pipeline services) reasons paper” (22 December 2010), para H4.50.

⁶⁴⁸ Section 207(1).

⁶⁴⁹ Section 207(2).

We also match the term of the risk-free rate to the regulatory period for ID regulation

6.147 For ID regulation, consistent with PQ, our final decision is to match the term of the risk-free rate to the regulatory period applying to regulated providers subject to PQ.⁶⁵⁰

6.148 We consider that an ID WACC is required so that we are able to undertake profitability assessments in the future for the regulated providers subject to ID. We intend to publish an ID WACC to allow interested persons to assess profitability *ex-post* and to assess whether the purpose of Part 6 is being met.⁶⁵¹

6.149 We considered three options for the term of the risk-free rate in the ID WACC.

6.149.1 **Option 1:** use the same risk-free rate settings in PQ WACC and ID WACC.

6.149.2 **Option 2:** leave open the option to vary the risk-free rate term in the ID WACC.

6.149.3 **Option 3:** adopt the suggestion of using a ten-year risk-free rate.

6.150 Our final decision is to adopt option 1 which we consider is appropriate for assessments of regulated providers' performance.⁶⁵² If LFCs consider that a different risk-free rate term is appropriate, they can publish their view of the appropriate risk-free rate, any impact on the WACC and provide a justification for this in their disclosures. We can take that justification into account when we assess the providers' performance. We see merit in aligning the benchmark WACC for ID regulation to that used for PQ regulation. It reduces complexity and acts as a starting point for *ex-post* profitability assessment under ID.

6.151 We recognise that option 2 would have the advantage of providing an option to vary the risk-free rate term in an ID WACC in the future. However, this would add complexity to WACC determinations.

6.152 Option 3 is based on the logic of attempting to match the term of the risk-free rate to the life of the investment. Under this approach, if the life of fibre investment

⁶⁵⁰ This decision will result in a three-year risk-free rate for the first regulatory period, followed by a three to five-year risk-free rate, depending on the length of the future regulatory periods for regulated providers subject to PQ.

⁶⁵¹ Under s 186 of the Telecommunications Act 2001, the purpose of ID regulation is 'to ensure that sufficient information is readily available to interested persons to assess whether the purpose of [Part 6] is being met'.

⁶⁵² Under s 187(2)(a), if a regulated provider is subject to ID, we may monitor and analyse all information disclosed in accordance with the ID requirements. Under s 187(2)(b), we must, as soon as practicable after any information is publicly disclosed, publish (on an Internet site maintained by or on behalf of us) a summary and an analysis of that information for the purpose of promoting greater understanding of the performance of individual regulated providers, their relative performance, changes in their performance over time, and their ability to extract excessive profits.

exceeds ten years, a ten-year risk-free rate would apply. We have previously noted, at paragraphs 6.141.1 to 6.141.6 that the use of swaps means businesses can mitigate their exposure to the longer term interest rate risk. This approach would also make the ID WACC determinations more divorced from those that would apply under PQ.

The term of the risk-free rate is matched to the regulatory period for PQ and ID

6.153 Our decisions to match the term of the risk-free rate to the regulatory period for PQ and ID regulation remain unchanged from the draft decisions.

6.154 Chorus and 2degrees submitted in support of our draft decisions.⁶⁵³

6.155 LFCs Enable and Ultrafast submitted:

6.155.1 on our emerging views paper that matching WACC to the regulatory period is less appropriate for LFCs given that they are not subject to PQ;⁶⁵⁴ and

6.155.2 on our draft decision recognising that LFCs are free to publish their views alongside the determined cost of capital if they consider that a different risk-free rate term is appropriate.⁶⁵⁵

6.156 Vector and Unison, who are regulated with an equivalent risk-free rate approach under Part 4, expressed concern with our draft decision to match the term of the risk-free rate to the regulatory period. They submitted that this is an artificial and specific strategy linked to the regulatory control period.⁶⁵⁶ Vector submitted that this approach is at odds with international regulators “which recognise efficient debt management strategies will involve debt being raised using different products and maturity periods”.⁶⁵⁷ Unison submitted that this approach reduces the ability of “supplier Treasuries to use a variety of products of different maturities for managing their debt portfolios.”⁶⁵⁸

⁶⁵³ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 204.4; 2degrees Mobile Limited “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 8.

⁶⁵⁴ Enable and Ultrafast Fibre “Fibre emerging views submission” (18 July 2019), section 7.

⁶⁵⁵ Enable Networks Ltd and Ultrafast Fibre Ltd “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 10.17(c).

⁶⁵⁶ Vector Communications “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 41; Unison “Submission on Fibre input methodologies – Draft decision” (30 January 2020), pages 2-3.

⁶⁵⁷ Vector Communications “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 41.

⁶⁵⁸ Unison “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 3.

- 6.157 In response to Vector and Unison, we note that we are setting a benchmark cost of debt which does not attempt to fully replicate a particular entity's individual financing or risk management strategy.
- 6.158 We note that in practice regulatory price-controls do, in effect, reset interest rate risk for regulated suppliers at every allowed revenue reset. We consider that a debt hedging strategy which reflects this is not unreasonable. Individual suppliers are free to choose which ever hedging strategy they see fit as the regime does not constrain them. The use of swaps to manage interest rate risk does not prevent differing treasury strategies and is entirely consistent with a staggered portfolio of maturing debt and different maturity periods.
- 6.159 As explained above, setting the term of the risk-free rate equal to the term of the regulatory period ensures that regulated providers are compensated for the risk they are exposed to during the regulatory period and that regulated providers are able to have the expectation of earning a normal return in the long run.

We will update the estimate of the risk-free rate for each cost of capital estimation

- 6.160 The risk-free rate will be updated for each cost of capital estimation, including annually for ID. This decision remains unchanged from the draft decision.

We will not change our risk-free rate estimation methodology for negative real interest rates

- 6.161 Our decision is to not change our risk-free rate methodology for negative real interest rates.
- 6.162 Two submitters expressed concern with our approach to estimating the risk-free rate given negative real interest rates and requested our view as to whether this is consistent with CAPM and the consequences for the TAMRP.⁶⁵⁹
- 6.162.1 Unison recommended that we “review the calculation of risk free rate and market risk premium to ensure they are adequate in light of observed negative real Government bond yields”, and publish our views on why we consider an estimate of a negative real risk-free rate is compatible with the capital asset pricing model and our calculation of the equity market risk premium.⁶⁶⁰

⁶⁵⁹ ENA “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 16-17; Unison “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 1-2.

⁶⁶⁰ Unison “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 1-2.

- 6.162.2 ENA submitted on “[t]he Commission’s letter in response to Vector in the DPP3 reset...” and commented that this letter did not state why no adjustment needs to be made for negative real interest rates.⁶⁶¹
- 6.163 Having considered these submissions, our view is that our methodology for estimating the risk-free rate is appropriate irrespective of negative real interest rates.
- 6.164 With respect to the TAMRP, the risk-free rate estimate feeds into the TAMRP estimate which we discuss at paragraph 6.534. We note that, in our regime, both the risk-free rate and market risk premium are expressed in nominal terms and that submitters have not provided any reasons why negative real interest rates would be incompatible with the CAPM or estimating the TAMRP.
- 6.165 As explained at paragraph 6.82 our starting point is to use the market rate for the risk-free investment. This is the price that firms, including regulated suppliers, face in the market to raise debt capital.
- 6.166 We are estimating a benchmark cost of debt to reflect the cost of capital of firms in workably competitive markets and we consider that singling out investors in suppliers of regulated services for protection from falling market interest rates would be contrary to this.
- 6.167 Negative real risk-free rates were not uncommon in the 20th century, as demonstrated in the Credit Suisse Yearbook and discussed by experts to UK regulators in the UK Regulators Network (UKRN) commissioned academic report.⁶⁶²
- 6.168 In addition, we note that negative real government bond yields are not uncommon in other jurisdictions and that US treasury bonds are currently trading at negative real interest rates, and have been throughout this year.⁶⁶³
- 6.169 Our approach, which reflects the market rate or price, is not inconsistent with the expert advice in the UKRN report. The report advises that:

⁶⁶¹ ENA “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 18.

⁶⁶² Credit Suisse “Global Investment Returns Yearbook 2013” (February 2013), page 6 and figure 3; Credit Suisse “Global Investment Returns Yearbook 2017” (February 2017), pages 17-19; Stephen Wright, Phil Burns, Robin Mason and Derry Pickford “Estimating the cost of capital for implementation of price controls by UK Regulators” (March 2018), page 35 and figure 4.4.

⁶⁶³ The Federal Reserve, Yields on Treasury inflation protected securities (TIPS), “Data Download Program, 10-year inflation indexed Treasury constant maturity, from 2/1/2019 to 8/31/2020” <<https://www.federalreserve.gov/datadownload/Chart.aspx?rel=H15&series=d12d70db9d7c91efdbf42f0f2a2bf083&lastobs=&from=01/01/2019&to=09/30/2020&filetype=csv&label=include&layout=seriescolumn&pp=Download>>.

Regulators should use the (zero coupon) yield on inflation-indexed gilts at their chosen horizon to derive an estimate of the risk-free rate at that horizon.⁶⁶⁴

We are conscious that this recommendation (which is essentially a restatement of the original recommendation made by MMW) implies a nontrivial change compared to regulatory practice in recent years. Most regulators have made reference to market gilts data in their assessments but then have set a different value when setting the RAR.⁶⁶⁵

While we accept the argument that the market for risk-free debt may possibly be distorted, we do not regard this as a justification for ignoring the prices that arise from this market.⁶⁶⁶

[A]t any given horizon, the risk-free rate is directly observable in nominal terms, and observable in real terms, from yields on indexed bonds, subject to the caveat that the indexation of such bonds is in terms of the RPI.⁶⁶⁷

This argument [that various institutional features of the market for UK government debt have led to yields on gilts (and especially indexed gilts) being artificially depressed] may or may not be correct; we would argue that it is simply irrelevant: the market price of indexed debt (and hence its implied yield) is simply what it is.⁶⁶⁸

- 6.170 The UKRN examines other regulatory approaches to the risk-free rate, and the assumptions underlying these, and concludes that they are not supported.⁶⁶⁹
- 6.171 We agree with the UKRN view that the market price is the appropriate benchmark, irrespective of negative real risk-free rates. Under our regime, the relevant WACC estimate is the market's view, and we therefore estimate the actual cost of capital of firms in workably competitive markets.
- 6.172 Recognising that different regulatory frameworks may result in a tendency towards different choices, we note that Ofwat referred to the UKRN view in its 2019 determination:

⁶⁶⁴ Stephen Wright, Phil Burns, Robin Mason and Derry Pickford "Estimating the cost of capital for implementation of price controls by UK Regulators" (March 2018), pages 8 and 31.

⁶⁶⁵ *ibid*, page 8.

⁶⁶⁶ *Ibid*, page 8.

⁶⁶⁷ *Ibid*, page 31.

⁶⁶⁸ *Ibid*, page 34.

⁶⁶⁹ *Ibid*, pages 31-36.

The UKRN study addresses this issue [raised by stakeholders that a negative risk-free rate is inconsistent with economic theory]. Its authors argue that regardless of whether this point is true, the observed yield on risk-free debt is nevertheless of importance to regulators. This is because the drivers of the risk-free rate are ultimately unimportant: what matters is the rate itself, because this has implications for the prices of substitutes (other low-risk investments) in the market. From an allowed return perspective for regulated entities, the market price is therefore sufficient.⁶⁷⁰

- 6.173 Our decision is to not change our risk-free rate methodology for negative real interest rates because we are estimating a benchmark cost of debt to reflect the cost of capital of firms in workably competitive markets.

Debt premium

Summary of decision

- 6.174 The debt premium is the additional interest rate, over and above the risk-free rate, required by suppliers of debt capital to compensate them for being exposed to the risks of default in lending to a firm plus an allowance for the inferior liquidity of corporate bonds relative to government bonds. In general, the longer the firm wishes to borrow the debt for, the higher the debt premium that the firm has to pay to the suppliers of debt capital.

- 6.175 The debt premium can be theoretically decomposed as:⁶⁷¹

$$\begin{aligned}\text{Debt premium} &= \text{liquidity premium} + \text{default premium} + \text{systematic risk premium} \\ &= \text{liquidity premium} + \text{default premium} + \beta_d \cdot MRP\end{aligned}$$

- 6.176 Our decision is to estimate the debt premium as an intermediate step towards estimating the cost of debt, which forms a component in estimating the cost of capital.

- 6.177 The IM will specify a regulated FFLAS-specific (as opposed to a regulated provider-specific) debt premium as the difference between the corporate borrowing rate and the risk-free rate. As with the risk-free rate, we will update the estimate of the debt premium for each cost of capital estimation.

- 6.178 Our decisions for the methodology for calculating the debt premium are:

- 6.178.1 the debt premium will be estimated by taking account of the average debt premium that would reasonably be expected to apply to publicly traded vanilla New Zealand dollar denominated corporate bonds that are issued

⁶⁷⁰ Ofwat “PR19 final determinations: Allowed return on capital technical appendix” (December 2019), page 34.

⁶⁷¹ Where β_d is the debt beta. The debt beta is discussed further in the Leverage section of this chapter at paragraphs 6.610 to 6.613.

by a regulated FFLAS provider not 100% owned by the government nor a local authority, with a target Standard and Poors (**S&P**) long-term credit rating of BBB;

6.178.2 to address the small number of bonds that are publicly traded in New Zealand that meet the above criteria, this may involve progressively expanding the range of publicly traded bonds in the New Zealand market considered to include:

6.178.2.1 regulated FFLAS providers with a S&P long-term credit rating of BBB;

6.178.2.2 telecommunication companies with a S&P long-term credit rating of BBB;

6.178.2.3 all other entities (excluding financial and banking institutions) with a S&P long-term credit rating of BBB;

6.178.2.4 regulated FFLAS providers with a S&P long-term credit rating other than BBB;

6.178.2.5 all other entities (excluding financial and banking institutions) with a qualifying investment grade rating other than a S&P long-term credit rating of BBB; and

6.178.2.6 those that are 100% owned by the government or a local authority;

6.178.3 but in each case adjusting the observed debt premium to approximate the debt premium that is likely to have been observed had the bond been that of a regulated provider with a S&P long-term credit rating of BBB;

6.178.4 we will estimate the debt premium with the simple historical average approach using five years of historical data;

6.178.5 the five-year average will be obtained:

6.178.5.1 for future years from corporate bond rates over a 12-month determination window;⁶⁷²and

⁶⁷² This is based on the debt premium reference year (DPRY) defined in the IMs to apply from the 1st of September to the 31st of August the following year. In its submission on our draft decision, Sapere suggested that we change the DPRY to the 12-month period ending on 30 November. See Sapere “The Cost of Capital Input Methodologies for Fibre” (report prepared for Chorus, 27 January 2020), p. 38. We consider that the DPRY does not need to be explicitly linked to a regulated providers’ disclosure year. As

- 6.178.5.2 for historic estimates by determining annual debt premiums estimates using historical data;⁶⁷³
- 6.178.6 the term of the debt premium will be five-years with a TCSD for bonds issued with a term to maturity greater than five years (and if the supplier's weighted average original tenor for its debt portfolio is greater than five years); and
- 6.178.7 we will also have regard to the Nelson-Siegel-Svensson (NSS) curve in determining the debt premium.

The debt premium

- 6.179 The second component of the cost of debt, which is added to the risk-free rate, is the debt premium. The debt premium reflects the additional risk an investor is exposed to when lending to a borrower other than the government. The size of the debt premium principally depends on the creditworthiness of the borrower, but also reflects the inferior liquidity of corporate bonds relative to government bonds. Financially strong firms can borrow at a lower debt premium than weaker firms or financially distressed firms.

Decisions we need to make in determining the IMs for debt premium

- 6.180 We need to estimate the debt premium when we estimate the cost of capital. The series of practical steps this involves comprise our decisions on how best to estimate the debt premium, ie we will:
 - 6.180.1 use a simple benchmark of NZ issued corporate bonds;
 - 6.180.2 use a five-year average of annual debt premium estimates;
 - 6.180.3 use data on bonds with a five-year target term to maturity;
 - 6.180.4 estimate a TCSD for longer dated bonds; and
 - 6.180.5 use data on bonds issued by corporates with a target credit rating of BBB.

- 6.181 The reasons for each of these decisions are outlined below.

Our decision is to use a simple benchmark approach to the debt premium

- 6.182 Firms have a range of options for raising debt. In simple terms, these options include bank loans, issuing bonds in New Zealand to institutions or the public and issuing

the debt premium is calculated based on a five-year average, the timing of the DPRY will have a minimal impact on the overall debt premium estimate.

⁶⁷³ These historical estimates are needed as we apply a 5-year historical averaging determination window in estimating the debt premium.

bonds overseas. Each option has its own market volume, tenor and credit worthiness characteristics.

- 6.183 Our draft decision proposed to use a simple benchmark approach to estimate the debt premium for regulated FFLAS. This simple approach uses a sample set of credit-rated and publicly traded corporate bonds denominated in New Zealand dollars.
- 6.184 Our ‘simple approach’ to calculating the debt premium only considers credit-rated publicly traded corporate bonds denominated in New Zealand dollars. A ‘complex approach’ would take into account that firms may raise debt capital through a number of channels in addition to issuing bonds in New Zealand.
- 6.185 Our simple approach to estimating the debt premium involves the following three steps.
 - 6.185.1 Identify credit-rated publicly traded vanilla⁶⁷⁴ corporate bonds denominated in New Zealand dollars, issued by regulated providers in New Zealand and, as a cross check, issued by other infrastructure businesses and corporate issuers (excluding financial and banking institutions) in New Zealand, which are not regulated FFLAS providers.
 - 6.185.2 Obtain the market yield to maturity on these bonds and the contemporaneous risk-free rate and estimate the debt premium by taking the difference between these two.
 - 6.185.3 Estimate, by interpolation, what the debt premium would be for a five-year term to maturity, consistent with a specified S&P long-term credit rating, or equivalent rating from Moody’s or Fitch, for bonds issued by regulated FFLAS providers.⁶⁷⁵
- 6.186 Advantages of the simple approach to estimating debt premiums are that it is relatively simple and easy to understand, and it is transparent and objective as it only uses publicly available data. Due to its generic nature, the simple approach to estimating debt premiums requires fewer subjective assumptions regarding, for example, treasury risk management policies or market issuance capacity.
- 6.187 We note that this is, in practice, also the methodology we use when estimating the debt premium for suppliers of electricity lines services, gas pipeline services, and

⁶⁷⁴ Vanilla bonds are defined as senior unsecured nominal debt obligations denominated in NZ\$ without callable, puttable, conversion, profit participation, credit enhanced or collateral features.

⁶⁷⁵ The term of the debt premium is not linked to the length of the regulatory period like the risk-free rate is. This is explained later in this chapter.

specified airport services we regulate under Part 4. As such it is widely understood and of proven practicality.

- 6.188 The ‘complex approach’ to estimating the debt premium would involve, first, estimating the debt premium for each option by which firms can raise debt denominated in (or swapped back to) New Zealand dollars. Second, it involves estimating the overall debt premium by making assumptions about the weighting of each borrowing option in a notional debt portfolio.
- 6.189 The main advantage of the complex approach to estimating debt premiums is that it recognises that firms may raise debt through a number of different channels. As such, this approach better mimics firms’ actual behaviour.
- 6.190 The main disadvantages of this approach are that it requires data that: (a) is firm specific and does not correspond to a representative benchmark; and (b) is not publicly available. The use of non-publicly available data would reduce certainty to regulated providers and end-users as it may impede their ability to independently replicate the estimation process. For example, the following would present significant challenges.
 - 6.190.1 Our understanding is that very few debt suppliers in New Zealand would be in a position to supply reliable non-public market representative data, and it is unclear if these entities could be considered unconflicted (as they might be shareholders, advisers to, or debt capital suppliers of the regulated provider).
 - 6.190.2 If we were to attempt to benchmark using the debt premium on bank loans, we would face the practical issue of obtaining reliable independent data as to what the ‘market’ average debt premium on bank loans actually is. By its nature, this information is private and each debt premium ‘quote’ reflects an individual bank’s (undisclosed) assessment of the creditworthiness of the specific borrower, together with the bank’s (undisclosed) required financing terms and covenants.
 - 6.190.3 We would first need to define a benchmark creditworthiness and ‘terms sheet’, against which quotes of the applicable debt premium could be obtained, and secondly, we would need to involve real potential customers to ensure the banks had an incentive to provide realistic, market driven quotes. Debt premium quotes from all of the banks would be required if something approaching a ‘market’ average debt premium for bank loans was to be estimated.
- 6.191 On balance, our decision is to use the simple approach to estimating the debt premium. This is for two main reasons.

- 6.191.1 First, while there are a range of options available to regulated providers for raising debt, publicly available data with respect to the debt premiums are only available for publicly traded bonds, which form the basis of the simple approach. The lack of public information presents a significant practicality hurdle for the more complex methodology given we intend to publish WACC determinations on a regular basis.
- 6.191.2 Second, other than for publicly traded bonds, debt premiums are generally not publicly available. Using the complex approach to estimate debt premiums would require non-public data, which is likely to impede the ability of regulated providers and interested persons to independently replicate the debt premium estimation process.
- 6.192 Our decision is also to restrict our benchmark to New Zealand denominated bonds. Including bonds denominated in foreign currency raises a range of issues on which we have previously received advice from Dr Lally:⁶⁷⁶
 - 6.192.1 These bonds are not very liquid given we understand the holders of them typically hold till maturity. Given we use Bloomberg's estimates which are based on secondary market information, this is problematic.
 - 6.192.2 There may be differences between local and foreign perception of default risk leading to differing premiums. Consequently, foreign bond data is unlikely to improve the estimation of the debt premium for NZ bonds.
 - 6.192.3 Inclusion of foreign bonds also leads to some of the practical difficulties associated with the more complex approach such as how much weight to place on foreign denominated bonds.
- 6.193 Overall, the debt premium is a notional benchmark of the cost of borrowing above the risk-free rate for regulated FFLAS providers. As such a simple benchmark of New Zealand corporate bonds meets that criteria and provides an independent estimate of these costs for regulated providers in New Zealand.
- 6.194 Submissions on our draft decision generally agreed with our overall approach to estimating the debt premium.⁶⁷⁷ We did not receive any submissions specifically on the application of the 'simple approach'.

⁶⁷⁶ Dr Martin Lally, Capital Financial Consultants Ltd, Review of submissions on the cost of debt and the TAMRP for UCLL and UBA services, 12 June 2014, page 9.

⁶⁷⁷ For example, see: Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), para 211.

6.195 Therefore, we maintain our draft decision to apply the simple approach to estimating the debt premium.

Our decision is to adopt a five-year historical average of debt premiums

6.196 Our draft decision proposed to use a five-year average of debt premiums when calculating the debt premium to apply in estimating the WACC for regulated FFLAS. In practice we calculate a debt premium based on a 12-month window for each year and we average across these estimates.

6.197 When calculating the debt premium, there are two broad approaches:

6.197.1 a historical average; or

6.197.2 the prevailing rate.

6.198 We consider that the prevailing rate approach should, in theory, promote the outcome in s 162(a) of regulated providers having incentives to invest as it provides the price signals for investment which meet the estimated current level of the debt premium. However, there are practical considerations for the debt premium involved in choosing between the prevailing rate and the historic average.⁶⁷⁸

6.199 There is a potential mismatch between the debt premium incurred by firms who issue debt on a regular rolling basis, and the corresponding compensation allowed for in our estimate of WACC. Firms can be exposed to any difference between the debt premium paid at the time they issue debt and the debt premium determined during the averaging window prior to the setting of the WACC.⁶⁷⁹

6.200 The mismatch arises because there is no practical way to hedge the debt premium in New Zealand (ie, there is no significant credit default swap market). Therefore, unless all debt is refinanced during the determination window, the debt premium allowed for by us would not be matched by the regulated provider.

6.201 Potential mismatches of the debt premium are a known disadvantage of the prevailing approach. However, the magnitude of any mismatch may be small and could be managed by regulated providers, being mitigated due to the following factors.

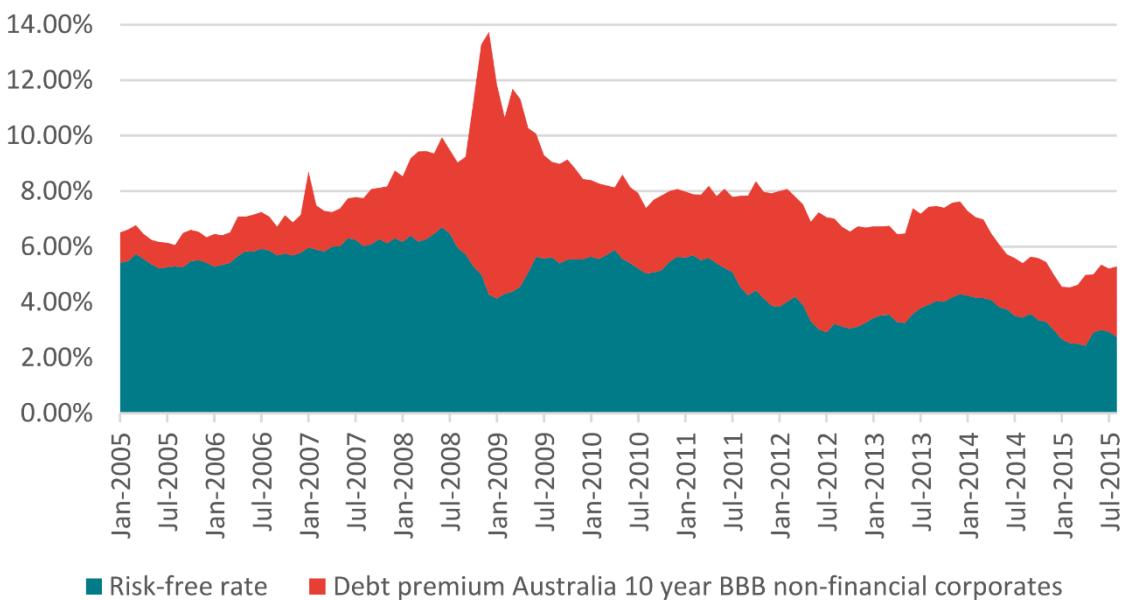
⁶⁷⁸ These practical considerations are not present for the risk-free rate as regulated suppliers are able to hedge exposure to changes in the risk-free rate through the use of interest rate swaps. This is explained in paragraphs 6.97 to 6.101.

⁶⁷⁹ Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016), page 9-10.

- 6.202 The debt premium is relatively stable over time, which reduces the chance that any mismatches will have a material impact on regulated provider revenues.
- 6.203 Any potential mismatches can take place in both directions. Therefore, mismatches are likely to even out over time. We consider that regulated providers should be able to manage this risk.
- 6.204 Dr Lally has also provided evidence that any mismatches in the debt premium are likely to be at least partially offset by mismatches between our estimate of the MRP and its true value.⁶⁸⁰
- 6.205 However, we recognise that if the determination window happened to coincide with a period of abnormal market conditions, then regulated providers could be over or under-compensated in comparison to their incurred debt. We consider that significant one-off movements in the debt premium of this type could have a sufficiently large effect on revenues of regulated providers and prices paid by end-users that estimating an 'average' debt premium over a longer period of time is a more appropriate solution.
- 6.206 We received evidence (in 2016) on this issue which showed how the debt premium for BBB non-financial corporate bonds spiked in Australia in the aftermath of the financial crisis in 2008-2009. This evidence is reflected in Figure 6.2 below.⁶⁸¹

⁶⁸⁰ Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016), page 9.

⁶⁸¹ Frontier Economics (report prepared for Transpower) "Response to cost of capital issues raised in Draft Input Methodologies" (4 August 2016), Figure 2.

Figure 6.2 Debt premium on BBB non-financial corporate bonds – Australia

Source: Data from Reserve Bank of Australia; Frontier analysis

6.207 A period of temporarily high debt premiums could have a negative impact on both:

6.207.1 regulated providers – who are unable to hedge against significant movements in the debt premium and so can be exposed to mismatches between their incurred debt premium (*eg*, under a staggered debt issuance strategy) and the allowance provided in the WACC;⁶⁸² and

6.207.2 end-users – who may have to pay for a high debt premium for the length of the regulatory period if a spike in the debt premium coincides with the fixed determination window.

6.208 If we were to set the debt premium based on a prevailing rate approach during a period of temporarily high bond yields, the debt premium for the regulatory period would be greater than the expected debt premium during the period. Suppliers would not be able to hedge against changes in the incurred debt premium and consumers would pay for a higher cost of capital. However, the historical average approach averages across previous years and so would balance out the period of temporarily high bond yields.

⁶⁸² Although we consider that regulated providers have some ability to manage their debt issuance practices at times when there is a high debt premium (*eg*, defer capex, issue short-term debt), the lack of a hedging market (*eg*, like the swap market for the risk-free rate) means that this is more difficult.

6.209 Given the above, we consider that, it is more appropriate to use a historical average of the debt premium, rather than the prevailing approach.

6.210 We received a number of submissions on our draft decision relating to the use and application of the historical averaging approach to estimating the debt premium.

6.210.1 Chorus supported the use of a historical average approach (rather than using a prevailing rate approach).⁶⁸³

6.210.2 The Electricity Network Association (ENA) submitted that indexation of the debt premium during the regulatory period is required as our proposed approach does not match the cost of debt achievable over a regulatory period. The ENA states:⁶⁸⁴

There needs to be a mechanism to make an annual adjustment to the debt component (K_d), such that the oldest period rolls out of the calculation and the latest year rolls in. This could, though need not, result in an adjustment to the revenue cap or at the end of the DPP period, in an NPV neutral wash-up. From a practical viewpoint, the Commission calculates new debt premia every year anyway, and we don't consider that the administrative burden would be problematic for them.

6.210.3 Unison also submitted that the use of a historical averaging approach used to establish a fixed debt risk premium for the regulatory period is inconsistent with suppliers rolling their debt over during a regulatory period.⁶⁸⁵ It states that a fixed debt premium is not reflective of regulated supplier' actual costs of debt during the regulatory period.

6.210.4 Unison also noted that Commission considered a rolling debt premium to be too administratively costly to implement in our 2016 IM review, but it was not evident why this was the case.

6.211 We agree with submissions from the ENA and Unison that, in theory, updating the debt premium during a period would allow closer to a realistic benchmark for debt financing. A rolling debt premium would benefit suppliers as they cannot easily hedge the risk associated with the debt premium as with the risk-free rate.

6.212 However, recalculating and reapplying the WACC annually during a regulatory period would involve intervening in the price-path and resetting allowed revenue for each

⁶⁸³ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), para 211.1.

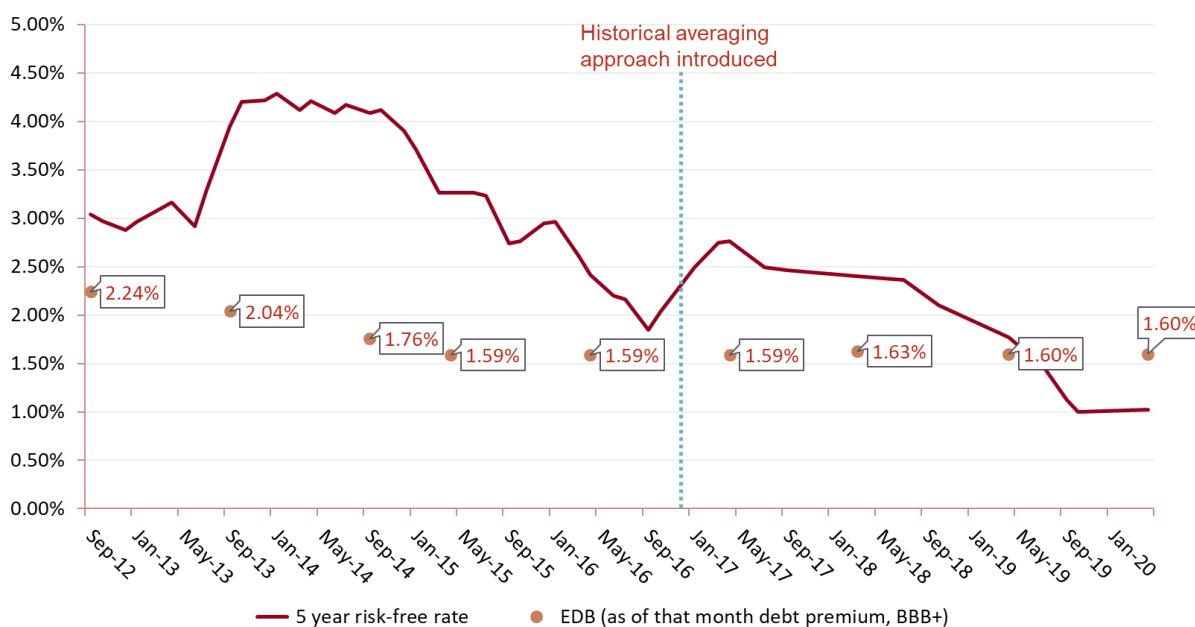
⁶⁸⁴ Electricity Networks Association "Submission on Fibre input methodologies – Draft decision" (30 January 2020), para 20.

⁶⁸⁵ Unison "Submission on Draft Fibre Input Methodologies" (30 January 2020), p. 2.

year of the regulatory period. This could make it more difficult to smooth revenues across a control period and introduce uncertainty to suppliers.

- 6.213 An NPV-neutral wash-up at the end of the regulatory period (as proposed by the ENA and Unison) would be less administratively burdensome and complex compared with annual updating and application of the WACC to the price-path.
- 6.214 When assessing the potential impact of a wash-up mechanism for the debt premium, we can look at how the debt premium has changed over time and its potential impact. Figure 6.3 below demonstrates that the debt premium has been stable over time (especially after the historical averaging approach was introduced during the 2016 IM review).

Figure 6.3 EDB historical debt premium estimates



- 6.215 We consider that any change in debt premium from a given year to another will generally be relatively small.⁶⁸⁶ The debt premium for investment grade bonds has generally been relatively stable, so changes in debt premium will likely not be biased up or down over a long time period and are therefore likely to cancel out, on average, over time.
- 6.216 If we take the largest change from year to year in debt premium (since the averaging approach was introduced), we can see the impact that a supplier would experience if we accepted the proposed wash-up approach. Table 6.2 below shows that, given the

⁶⁸⁶ Although we recognise that during periods of abnormal market conditions the debt premium can spike.

largest observed change in debt premium year-to-year (1.59% to 1.63%), the impact would be a 1.1 bps (67th percentile: 1.2 bps) change in the WACC.⁶⁸⁷

Table 6.2 Impact of a year-on-year change in debt premium

Debt premium	1.59%	1.63%	Impact on WACC (1.59% to 1.63%)	1.60%	Impact on WACC (1.59% to 1.60%)
Midpoint vanilla WACC	5.064%	5.075%	1.1 bps	5.067%	0.3 bps
67 th percentile vanilla WACC	5.640%	5.652%	1.2 bps	5.643%	0.3bps

- 6.217 Overall, if we were to implement the proposed debt premium wash-up approach, then the net change over the period would be from 1.59% to 1.60% (as demonstrated in Table 6.2 above). The net wash-up to the supplier would be 0.3 bps, ie, zero if rounded to the nearest whole basis point.
- 6.218 We also note that, with our fixed debt premium based on a historical averaging approach, any changes in the debt premium during a regulatory period will be reflected in the calculation of the historical averaging when estimating the debt premium for the subsequent regulatory period. Ie, the benchmark debt premium will reflect changes in the market during the regulatory period but the impact on suppliers will be lagged.
- 6.219 The trade-off of this decision is whether the effort and complexity of washing up the debt premium at the end of the period is worth the potential gain to suppliers and consumers. We consider that the gains from updating the debt premium throughout the period and implementing an NPV-neutral wash-up are very marginal (and will in any event be reflected in the averaging period in the future), and do not justify the effort and additional complexity of introducing an adjustment.
- 6.220 Our decision is therefore to apply a historical averaging approach when estimating the debt premium, rather than a prevailing approach. In practice this will mean going back five years for the first PQ and ID WACC determinations and thereafter, updating

⁶⁸⁷ These WACC estimates are based on our final decisions on the cost of capital parameters (including a risk-free rate of 1.02% as was our WACC determination value as at the April 2020), asset beta of 0.5, leverage of 29%, TAMRP of 7.5% and adjusting the average debt premium estimate from 1.59% to 1.63%. We produce the 67th percentile values using our final decision estimate of the standard error of 0.0131.

with the latest 12-month data (and dropping the oldest 12-month data) every year.⁶⁸⁸

6.221 Our decision is also not to introduce a wash-up mechanism for the debt premium.

Why we use a five-year term plus TCSD for estimating the debt premium

6.222 Since the debt premium is expected to increase with the term of the debt, the term of the debt being used as a benchmark matters. Unlike the risk-free rate, we also recognise it is not practical to hedge the debt premium through the use of interest rate swaps.

6.223 In principle the term of the estimated debt premium should match the efficient term of debt used to finance regulated providers' infrastructure. In this respect, we do not perceive any substantive differences between financing any long-term infrastructure, that is we do not expect substantial differences in principle in financing considerations between regulated FFLAS and electricity distribution and transmission. We recognise one obvious actual difference is the use of Crown financing for regulated FFLAS. Given we adjust for this separately, we do not consider this is a relevant difference when estimating the notional efficient cost of debt.

6.224 When arriving at our decision of what the term should be, we have considered the relevant evidence before us.

6.224.1 We note that we had previously surveyed suppliers of services regulated by us in other sectors.⁶⁸⁹ This demonstrated that while some firms issued debt for a term greater than five years, most did not. Therefore, basing the estimation of the debt premium on a ten-year term for regulated providers would overstate the debt premium by compensating them for costs that they do not actually incur.

6.224.2 In 2009 and 2010 we surveyed suppliers of services regulated under Part 4.⁶⁹⁰ In 2010 (2009), only five (four) of 29 (31) regulated suppliers which responded to our request advised that the actual weighted average original period to maturity of their debt was greater than five years - and

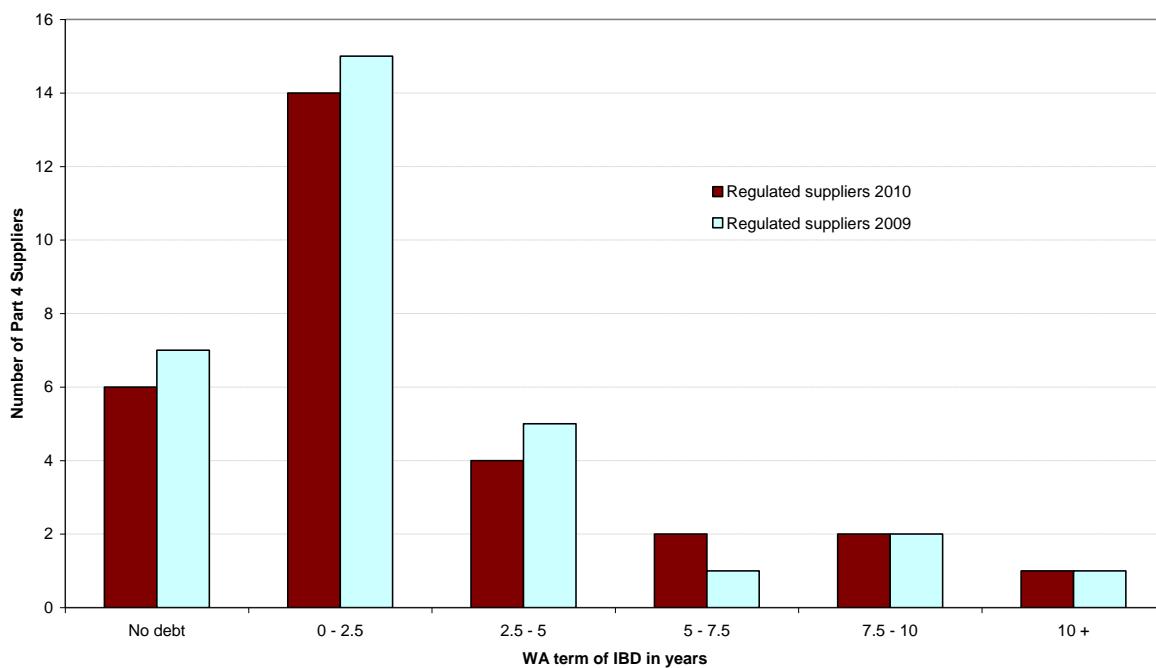
⁶⁸⁸ For the avoidance of doubt the debt premium for a price-quality path will not be updated during the regulatory period and will be fixed at the beginning of the period until the next reset.

⁶⁸⁹ Suppliers of electricity lines services, gas pipeline services, and specified airport services we regulate under Part 4.

⁶⁹⁰ Suppliers of electricity lines services, gas pipeline services, and specified airport services we regulate under Part 4.

only one was greater than ten years.⁶⁹¹ Their responses are shown in **Figure 6.4**. Large suppliers generally issued longer maturity debt, while (the more numerous) smaller suppliers did not. In the 2010 survey, the value-weighted average original period to maturity of the regulated suppliers who responded was 7.4 years (in 2009 it was 7.3 years).⁶⁹²

Figure 6.4 Regulated suppliers' debt portfolio: weighted average original term to maturity of interest-bearing debt⁶⁹³



6.225 In 2010 this led us, in our IMs relating to suppliers of electricity lines services and gas pipeline services determined under Part 4, to allow for a five-year term but also allow for a TCSD, which provided compensation for firms issuing debt for a term exceeding five years. This was to avoid the situation where longer-term debt was discouraged given longer-term debt can be to the benefit of consumers. Only firms which actually issued debt with a term exceeding five years qualify.

⁶⁹¹ The five suppliers with debt portfolios with an average original tenor exceeding five years comprised two suppliers of specified airport services, and three suppliers of electricity lines services and/or gas pipeline services.

⁶⁹² For suppliers of specified airports services, the weighted average original period was approximately five years in 2009 and 2010. The weighted average original period for suppliers of electricity distribution services was 7.8 years. However, if the suppliers that are also suppliers of gas pipeline services are removed, the weighted average original period falls to approximately two years.

⁶⁹³ Suppliers of electricity lines services, gas pipeline services, and specified airport services we regulate under Part 4.

- 6.226 In 2015, when we considered this issue as part of setting the prices for Chorus' UCLL and Chorus' UBA using the FPP, we concluded a single term of seven years was appropriate. For the FPP we were setting a WACC for a hypothetical efficient operator. On that occasion we set a term of seven years in line with advice from Dr Lally and our 2010 survey.⁶⁹⁴ We also noted several recent domestic bond issues at that time which supported a seven-year term.
- 6.227 Evidence continues to suggest bonds of less than ten years are issued to finance long-term infrastructure. For example, Christchurch City Holdings Limited issued a fixed rate six-year bond in November 2018.⁶⁹⁵ **WEL Networks Limited (WEL Networks)** issued a bond with a term of 5 years in August 2018.⁶⁹⁶ Longer-term bonds are also issued, for example, Chorus issued a ten year bond in November 2018.⁶⁹⁷
- 6.228 For regulated FFLAS providers, we consider the current situation is more akin to the situation we were considering in 2010. There are several regulated providers and while we would not want to discourage long-term debt where that is efficient, we also do not want to over-compensate regulated providers for their debt costs. It is for each regulated provider to determine the average tenor of its debt portfolio. We would not want to incentivise firms to increase their refinancing risk by relying more heavily on shorter maturity debt.
- 6.229 We consider that issuing bonds with an original tenor of longer than five years may be an efficient method to fund assets with long economic lifetimes. The higher debt premiums of longer-term bonds (ie, compared to the debt premium on a five-year bond) cannot be hedged in the same way as for the risk-free rate. Therefore, we consider that the TCSD is a valid element of the efficient cost of debt.
- 6.230 We considered whether, by allowing a TCSD linked to the actual debt practices of firms, we would provide an incentive for firms to issue debt for inefficiently longer periods. If it did do so, this may not be to the long-term benefit of end-users. We do not have evidence that this would be a problem. However, when weighing the advantages and disadvantages of our approach we note the following.
- 6.230.1 End-users would not have to pay the additional debt premium to firms that are not in fact issuing debt with original maturity terms longer than five years.

⁶⁹⁴ Commerce Commission "Cost of capital for the UCLL and UBA pricing reviews: Final Decision" (December 2015), paragraphs 77 to 89.

⁶⁹⁵ CCHL Annual Report, page 50.

⁶⁹⁶ WEL Group Annual Report 2019, page 64.

⁶⁹⁷ NZX Quotation Notice – Chorus Limited ("CNU020") Bonds, 23 November 2018.

- 6.230.2 In general, we do not wish to discourage firms from issuing longer-term debt to reduce refinancing risk.
- 6.231 Prudent management of refinancing risk by issuing debt with a long period to maturity can be to the long-term benefit of end-users. Therefore, where a regulated provider actually issues debt with an original period to maturity greater than five years, and the weighted average original period to maturity of its debt portfolio is also greater than five years, our decision is that an allowance for the additional debt premium is appropriate. The allowance relates only to debt issued with an original period to maturity greater than five years.
- 6.232 We have also considered whether, like the risk-free rate, the term should match the regulatory period without any TCSD adjustment. For the first PQ path this would imply a term of three years. As we have previously discussed, at paragraph 6.200, unlike the risk-free rate, firms cannot swap the debt premium to the extent they can for the risk-free rate. Furthermore, a three-year term would be a relatively short debt structure with attendant increased debt issuance costs and refinancing risk. Neither of these would necessarily promote the long-term benefit of end-users.
- 6.233 Consequently, and balancing these issues, we consider that using a five-year term and allowing for a TCSD allowance for the purpose of PQ and ID regulation is likely to best balance the outcomes in s 162(a) for a regulated provider having incentives to innovate and to invest and s 162(d) for a regulated provider being limited in their ability to extract excessive profits.
- 6.233.1 Where a regulated provider has a debt portfolio with a long average tenor, end-users benefit from the reduced refinancing risk and thus it is appropriate to recognise that part of the higher cost of issuing longer maturity debt that cannot be removed through the swap market.
- 6.233.2 The TCSD allowance will only apply where a regulated provider's debt portfolio has an original weighted average tenor exceeding five years. For a regulated provider whose debt portfolio has a weighted average tenor which is at or less than five years, the allowance will not apply. For such regulated providers, a debt premium based on a five-year term is sufficient.
- 6.233.3 This allowance will not be added to the estimate of the WACC; rather the allowance will be added separately as an allowable cost (along with operating costs, depreciation etc) for qualifying providers only. The mechanics of how this allowance will apply in practice are explained later in this chapter at paragraphs 6.340 to 0.

- 6.233.4 The practical effect of the TCSD, in conjunction with a term for the risk-free rate which matches the regulatory period and a five-year term for the debt premium, is to ensure regulated providers are appropriately compensated including where a greater debt premium is incurred due to the issue of long-term debt. It also ensures regulated providers are not over-compensated for risks and costs they do not incur.
- 6.233.5 The TCSD is a practical way of recognising and compensating for the actual debt premium on long-term debt by some but not all regulated providers, while ensuring the cost of capital is not overstated.
- 6.233.6 For ID regulation, the IM specifies a five-year term when estimating the debt premium. Our decision is to update the estimate of the five-year debt premium on an annual basis. For PQ, the IM specifies a five-year term when estimating the debt premium.

- 6.234 We discuss the practical approach to estimating the TCSD later in this chapter.
- 6.235 In its submission on our draft decision, Chorus supported our draft decision to use a five-year debt premium with a TCSD for longer-tenor bonds.⁶⁹⁸ We received no other submissions on this issue on our draft decisions.
- 6.236 We maintain our decision to use bonds of a five-year term for estimating the debt premium for regulated providers, which we will then apply a TCSD to, if regulated providers issued debt of a term greater than five years. A TCSD will be applied if the regulated provider issues debt of a term greater than five years and its debt portfolio has an original weighted average tenor exceeding five years.

Our approach to selecting the bonds used to estimate the debt premium

- 6.237 New Zealand has only a limited number of bonds that are publicly traded. This can make it difficult to accurately estimate the debt premium for a firm with a specific target credit rating and a remaining term to maturity of five years. The IM allows us to consider a wider range of credit ratings and issuers, when estimating the debt premium.
- 6.238 We place reduced weight on bonds issued by 100% government owned entities. We consider that the bond prices of 100% government owned entities are less likely to be consistent with privately owned companies, given the existence of an implicit guarantee from the government in the event of financial distress. Yields on such

⁶⁹⁸ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 211.2.

bonds are likely to behave differently and have lower debt premiums than other equivalent bonds.

- 6.239 However, the weighting of partially privatised entities are not reduced.⁶⁹⁹ We examined evidence on this in 2016 and noted that, in practice, government ownership had a limited effect on observed debt premiums for publicly traded New Zealand bonds. These largely related to electricity gentailers.⁷⁰⁰ We expect the same to hold true for the regulated providers where the Crown retains some financing interest.
- 6.240 We also exclude bonds issued by entities operating predominantly in the banking or finance industries as these institutions do not have comparable risk profiles to those in our sample. In a PwC report prepared for the Queensland Competition Authority (QCA), it was considered that the yields of the bonds of banking and financial institutions trade materially differently from operating non-financial businesses.⁷⁰¹
- 6.241 This still leaves open the question of which other publicly traded bonds are good comparators for the notional debt premium we are estimating. Ideally, we would use bonds issued by regulated providers in New Zealand of our target term and credit rating. In practice we are unlikely to have sufficient data available to restrict our criteria to such a degree.
- 6.242 Our decision is to adopt a hierarchical approach to bond selection for regulated providers which makes best use of the available data. Our reasons for this are:
- 6.242.1 There are only a limited number of publicly traded vanilla New Zealand dollar denominated corporate bonds that are issued by regulated providers with a qualifying S&P long-term credit rating of BBB. In other words, we are unlikely to have the data available to have a perfectly matched bond on which to estimate the debt premium. Hence, we need to widen our criteria to practically estimate the debt premium when we estimate the WACC for regulated FFLAS.
 - 6.242.2 By progressively expanding the range of publicly traded bonds we consider that we can widen the available data incrementally and thereby explicitly trade-off how distant comparator individual bonds are from the targeted

⁶⁹⁹ That is, if a corporate bond is issued by a supplier that is not 100% government owned, it can fall in any of the other categories if it is applicable to the criteria of sector, credit rating and term to maturity.

⁷⁰⁰ See Commerce Commission, “Input methodologies review draft decision: Topic Paper 4: Cost of capital issues” (June 2016), paragraphs 168 to 171 and Commerce Commission “Input methodologies review decisions: Topic Paper 4: Cost of capital issues” (December 2016), paragraph 163 to 164.

⁷⁰¹ PricewaterhouseCoopers “A cost of debt methodology for businesses regulated by the Queensland Competition Authority, report prepared for the Queensland Competition Authority” (June 2013), p. 9.

bonds at the time we estimate the debt premium. That is, we widen only as much as is required given the data available at that time.

6.242.3 We consider that this methodology for estimating the debt premium strikes an appropriate balance between promoting certainty for end-users, access seekers and suppliers in relation to the estimation of the debt premium, consistent with s 174, while providing the flexibility necessary to ensure the methodology is workable, given the number of publicly traded bonds in New Zealand and that the composition of those bonds will change over time.

6.243 In other sectors we have adopted a hierarchical approach to bond selection.⁷⁰²

6.244 We prefer issuers of the required target credit rating as we consider that credit worthiness is a key element of the market's assessment of a bond's debt premium. A company's credit rating is the main indicator of its credit worthiness.

6.245 Our draft decision was to adopt a target credit rating of BBB+.⁷⁰³ Some submissions disagreed with our draft decision to apply a BBB+ credit rating and proposed that a BBB rating was appropriate.⁷⁰⁴ In its submission on our draft decision Chorus also disagreed with the proposed hierarchical approach to bond selection to estimate the debt premium:⁷⁰⁵

...the hierarchical structure the Commission adopts should place the most emphasis on bonds regulated suppliers of FFLAS issue, followed by bonds other infrastructure service providers or New Zealand corporates issue.

6.246 We set the debt premium based on the target sector, credit rating and ownership. In principle, this should reflect the prudent cost of debt of a notional regulated supplier. Assuming that FFLAS issuers have the target credit rating and do not become 100% government-owned, these issuers will have the most weight placed on their bonds as outlined in the hierarchy below.

6.247 As explained in more detail later in the Credit Rating section, our decision is to specify a target S&P credit rating of BBB for determining the debt premium for

⁷⁰² Suppliers of electricity lines services, gas pipeline services, and specified airport services we regulate under Part 4.

⁷⁰³ Commerce Commission "Fibre input methodologies – Draft decision paper" (19 November 2019), paras 3.847–3.850.

⁷⁰⁴ For example, see: Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), para 212; and Sapere "The Cost of Capital Input Methodologies for Fibre" (report prepared for Chorus, 27 January 2020), para 96.

⁷⁰⁵ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), para 213.

regulated suppliers.⁷⁰⁶ This is a change from our draft decision to set the target S&P credit rating of BBB+.

- 6.248 Our final decision on the hierarchy of publicly traded, New Zealand dollar denominated bonds are bonds issued by:
- 6.248.1 regulated FFLAS providers with the S&P long-term credit rating of BBB;
 - 6.248.2 telecommunication service providers with the S&P long-term credit rating of BBB;
 - 6.248.3 all other entities (excluding banking and financial institutions) with the S&P long-term credit rating of BBB;
 - 6.248.4 regulated FFLAS providers with a qualifying investment grade rating other than the S&P long-term credit rating of BBB;
 - 6.248.5 all other entities (excluding banking and financial institutions) with a qualifying investment grade rating other than the S&P long-term credit rating of BBB; and,
 - 6.248.6 an entity that is 100% owned by the government or a local authority which still holds an investment grade rating.
- 6.249 The reasons for this hierarchy are that we consider regulated providers and then telecommunication service providers are the closest matches to our preferred comparator.

Use of the NSS curve in determining the debt premium

- 6.250 Our draft decision was that we would also have regard to the Nelson-Siegel-Svensson (NSS) approach in estimating the debt premium. This is a technique used to estimate the debt premium based on historic data. It has been used internationally by central banks and other market participants for modelling the interest rate term structure.
- 6.251 We noted that we currently have regard to the NSS curve in determining the debt premium as specified in the IMs relating to the supply of electricity lines services, gas pipeline services and specified airport services, determined under Part 4. Its advantage is it is objective, transparent and appears to achieve reasonable accuracy.

⁷⁰⁶ In addition to inputting into our estimate of the debt premium, the notional credit rating also signals the prudent long-term level of exposure to credit default risk in a regulated sector.

It is however subject to the same limitations of all quantitative estimates, that anomalous data may give rise to anomalous results.

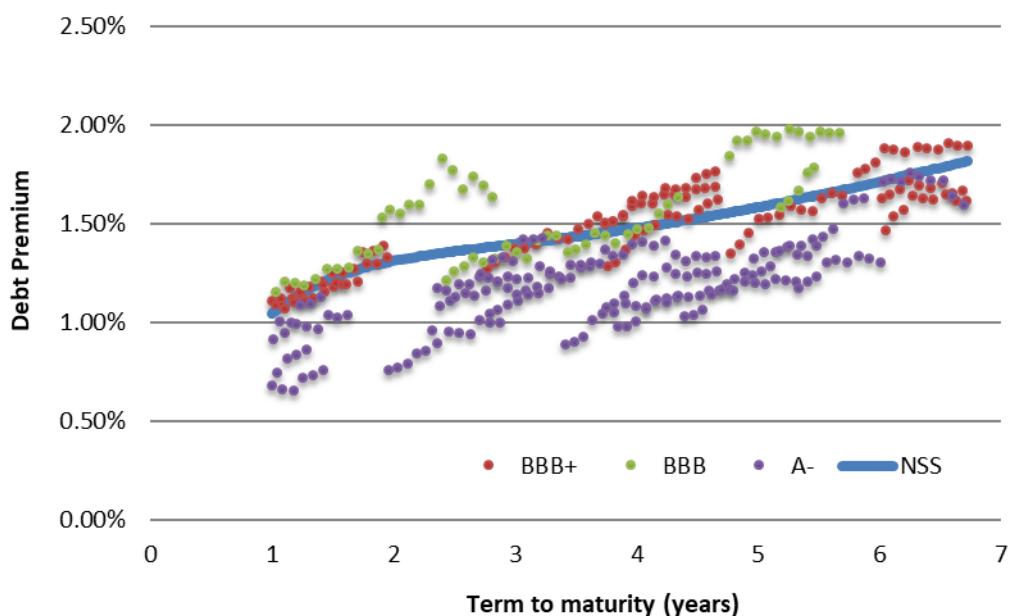
- 6.252 In its submission on our draft decision, Chorus supported having reference to the NSS curve in estimating the debt premium.⁷⁰⁷ Sapere (for Chorus) noted that it is “not clear what regard has been given to the analysis” and in its view “the NSS curve illustrated in Attachment G has a poor fit and should be given no regard”.⁷⁰⁸
- 6.253 As we discuss in Attachment H, term structure models are used extensively by central banks, financial institutions and government organisations around the world to price assets, manage and allocate risk and design policies. According to the European Central Bank, there are four main reasons for the popularity of the Nelson-Siegel model:⁷⁰⁹
 - 6.253.1 the model is easy to estimate;
 - 6.253.2 the yield curve can provide estimates for all maturities (ie, bonds not observable in the market);
 - 6.253.3 factors have intuitive interpretation so that estimations and conclusions are easily communicated from the model; and
 - 6.253.4 the model has been proven to fit data well.
- 6.254 For our Part 4 WACC determinations, when estimating the debt premium, we use the relevant data at the time along with the bond hierarchy outlined in the IMs and apply judgement in determining the appropriate debt premium value.
- 6.255 We place primary weight on our hierarchy of bonds and use the NSS approach as an additional tool to provide an objective estimate of the term structure to determine the debt premium. We consider that this approach has been useful in assessing the corporate bonds sample to estimate the debt premium.
- 6.256 Figure 6.5 below demonstrates an example of an NSS estimation that was used as part of the July 2019 GPB debt premium estimation. This utilised a bond sample with a target rating of BBB+, but also includes bonds with ratings within one notch of the target rating and adjusts for the average difference between credit ratings to fit the NSS curve for the target credit rating.

⁷⁰⁷ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 211.4.

⁷⁰⁸ Sapere “The Cost of Capital Input Methodologies for Fibre” (report prepared for Chorus, 27 January 2020), para 101.

⁷⁰⁹ European Central Bank (2008).
<https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp874.pdf?4b32dc2539d2598c420ec5e96a3891f7>

Figure 6.5 NSS curve using bonds for the July 2019 GPB debt premium estimation



- 6.257 Given the considerations in paragraphs 388 to 388, our decision is to retain having reference to the NSS curve in the estimation of the debt premium for our WACC determinations.
- 6.258 Attachment H summarises extracts from our technical attachment used as a result of the 2016 review of the IMs relating to the supply of electricity lines services, gas pipeline services and specified airport services, determined under Part 4, which lays out in detail the approach we use for regulated FFLAS.⁷¹⁰
- How these criteria are practically implemented*
- 6.259 The practical implementation of applying these criteria for estimating the debt premium closely matches our existing approach for suppliers of electricity lines services and gas pipeline services under Part 4. Examples of such determinations are publicly available on our website.
- 6.260 As explained later in this section, our credit rating decision is to apply a target rating of BBB. In its submission on our draft decision, Chorus noted in relation to the proposed hierarchical approach based on a BBB+ target rating, that:⁷¹¹
- 6.261 The proposed approach would result in little, if any, weight to the actual debt premium incurred by the only FFLAS supplier subject to PQR.

⁷¹⁰ Commerce Commission “Input methodologies review decision, Topic Paper 4: Cost of capital issues” (December 2016), Attachment D.

⁷¹¹ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 213.

- 6.262 The estimation of the debt premium is based on a notional target firm, and our change to a target rating of BBB will be reflected in the weightings of bonds using the updated bond hierarchy in our debt premium estimations.
- 6.263 We note, however, that we do not consider the Chorus corporate bond maturing on 6/12/2028 to currently be appropriate for our debt premium estimation. The Chorus bond has a ‘variable’ structure where the base rate is reset 5 years into the term of the bond.⁷¹² Our methodology generally only considers corporate bonds with a simple interest rate to maturity to allow a consistent bid-yield to maturity to be calculated across the debt premium bond sample. If we were to include this bond it would require making changes to the observed secondary market yield that would be relatively complicated.
- 6.264 Once the bond’s base rate is reset in December 2023, we consider that the bond will be appropriate to use in our debt premium calculation. After the base rate has been reset, the interest rate will essentially become ‘fixed’ until maturity, and therefore will be consistent with the rest of the corporate bond sample.⁷¹³

Compensation for debt issuance and associated costs

Summary of final decision

6.265 Our final decision is to provide an allowance for debt issuance costs as follows:

- 6.265.1 20 bps (0.20%) p.a. for a five-year regulatory period; and
- 6.265.2 for a shorter regulatory period debt issuance costs would be relatively higher as a proportion of total annual debt costs, and therefore we make an upward adjustment for three or four-year regulatory periods (on a % p.a. basis) where:
 - 6.265.2.1 the allowance for a three-year regulatory period is 33bps; and
 - 6.265.2.2 the allowance for a four-year regulatory period is 25bps.

⁷¹² The coupon received by investors is made up of a margin amount (1.80%) and a base rate (which is based on swap rates at issuance and reset after 5 years from issuance). The base rate is reset at the market after 5 years, so this component is essentially being priced to match the then remaining term to maturity of five years. The margin is constant for the entire life of the bond, so this component is essentially being priced at the original 10-year term to maturity. This complicates the estimation of the current market debt premium analysis as its yield is essentially made up of components with different terms to maturity during the first five years of the term until the base rate is reset.

⁷¹³ We consider that we have sufficient data to undertake the calculation without requiring this specific bond until the base rate is reset in 2023.

- 6.266 Our final decision recognises that fees and costs associated with prudent debt issuance and refinancing costs are legitimate expenses that should be compensated through an allowance as part of the cost of debt.
- 6.267 Our final decision is that the value of debt issuance costs should be 20 bps (0.20%) p.a. for a five-year regulatory period with an upward adjustment for three and four-year regulatory periods (on a p.a. basis).

We provide a debt issuance costs allowance of 20 bps (0.20%) p.a. for a five-year regulatory period

- 6.268 Our final decision is to provide an allowance for debt issuance costs of 20 bps (0.20%) p.a. for a five-year regulatory period.
- 6.269 Given the variability in costs (due to market conditions, for example), we have deliberately not been precise in the debt issuance allowances for the different debt issuance components. The baseline 20 bps for a five-year regulatory period broadly represents:
- 6.269.1 Debt issuance costs – 9-10 bps p.a.;
 - 6.269.2 Swap transaction costs – 3-4 bps p.a.; and
 - 6.269.3 compensation for ‘potential’ additional costs, where efficiently-incurred, associated with brokerage, new issue premium, committed facilities/cost of carry, forward starting swaps – 7-9 bps p.a.
- 6.270 The 20 bps (0.20%) p.a. estimate for a five-year regulatory period is our best view of the ‘average cost’ of a benchmark supplier issuing NZ domestic vanilla bonds on a regular basis consistent with our ‘simple approach’ to estimating the cost of debt.⁷¹⁴
- 6.271 We consider that an efficient regulated provider may engage in swap transactions when managing its interest pricing risk even if the debt does not have an original tenor that is greater than five years: for example, if a firm issues debt on a rolling five-year basis.
- 6.272 Further details on how we reached our final decision on debt issuance costs are provided in the following sections.

⁷¹⁴ The ‘simple’ approach to estimating the cost of debt excludes any costs associated with debt issued in foreign markets or bank debt. See paragraphs 6.182-6.193.

Our debt issuance cost allowance includes debt issuance costs of 9-10 bps p.a for a five-year period

- 6.273 We provide an indicative allowance for debt issuance costs of 9-10 bps p.a. for a five-year regulatory period.
- 6.274 The cost of debt allowance is a benchmark estimate based on the cost of issuing publicly traded corporate bonds denominated in New Zealand dollars. Actual debt practices are likely to vary significantly from regulated provider to regulated provider depending on their strategy, risk tolerance and efficiency. We do not attempt to replicate exactly all costs associated with an individual regulated provider's hedging or issuance strategy.
- 6.275 As part of our 2016 review of the IMs relating to the supply of electricity lines services, gas pipeline services and specified airport services, we undertook a confidential debt survey of regulated suppliers to help review the suitability of our estimate of issuance costs under Part 4. From this survey we identified 30 vanilla NZ domestic bonds equivalent to the type of bond we use to estimate the debt premium for suppliers under Part 4. The average issuance cost provided in the debt survey of these bonds was 9 bps p.a. when averaged over the original tenor of the bond, and 10 bps p.a. when the costs were assumed to be averaged over a five-year term.
- 6.276 We have used the estimates we derived from the 2016 confidential debt survey for the IMs relating to the supply of regulated FFLAS.

Our debt issuance cost allowance includes swap costs of 3-4 bps p.a for a five-year regulatory period

- 6.277 We provide an indicative allowance of 3-4 bps p.a for a five-year period for the cost of executing swaps as part of the debt issuance cost allowance.
- 6.278 We define the cost of executing a swap transaction as:

half of the New Zealand dollar wholesale bid and offer spread for a vanilla interest rate swap determined at the time of pricing the qualifying debt.

- 6.279 In reaching the 3-4bps value we have decided to rely on the estimation results from the 2016 confidential debt survey, and on submissions and other data gathered as part of the 2016 review of the IMs relating to suppliers of electricity lines services, gas pipeline services, and specified airport services, determined under Part 4, where:

- 6.279.1 survey data from suppliers suggested the average cost of executing an interest rate swap was about 2 bps p.a.;⁷¹⁵
- 6.279.2 analysis as part of setting the prices for Chorus' UCLL and Chorus' UBA using the FPP over the period 2013-2015 showed that the average swap cost was 1-2 bps;
- 6.279.3 average supplier estimates for swap costs in their disclosed TCSD calculations ranged from 0.7 bps p.a. to 3.5 bps p.a.; and
- 6.279.4 stakeholder estimates of the average number of swaps needed per year ranged from 1.3 to 2, and stakeholder estimates of the average cost ranged from 2 to 4bps.⁷¹⁶

6.280 We consider that this evidence remains appropriate and we have therefore decided that an appropriate estimate of the cost of executing a swap transaction in NZ is approximately 2 bps p.a., and that an appropriate total allowance for swap costs is 3-4 bps p.a for a five-year regulatory period.⁷¹⁷

Our debt issuance cost allowance includes compensation for 'potential' additional costs of 7-9 bps p.a for a five-year period

6.281 We provide compensation for the following 'potential' additional costs:

- 6.281.1 brokerage paid on wholesale/retail bonds;
- 6.281.2 credit rating costs and cost of headroom/standby facilities; and
- 6.281.3 new issue premium.

6.282 We have decided not to provide compensation for other costs:

- 6.282.1 associated with foreign issued bonds; and
- 6.282.2 issuing bank debt.

⁷¹⁵ Suppliers of electricity lines services, gas pipeline services, and specified airport services we regulate under Part 4.

⁷¹⁶ As part of the 2016 review of the IMs relating to suppliers of electricity lines services, gas pipeline services, and specified airport services, determined under Part 4, we considered evidence on the appropriate allowance for swap execution costs. In this context, Contact submitted that swap execution costs are approximately 2 bps p.a. and suggested that on average the equivalent of 1.3 swaps would be needed, and Aurora submitted that we should include an allowance for the cost of two swaps with an allowance for each of 4 bps p.a. (8 bps in total), based on our decision in the UCLL/UBA pricing review.

⁷¹⁷ We note that, as a result of the 2016 review of the IMs relating to suppliers of electricity lines services, gas pipeline services, and specified airport services, determined under Part 4, we estimated the appropriate allowance for swap costs at 3-4bps p.a.

- 6.283 As outlined in our final decision, at paragraphs 6.183 to 6.191 we have decided to use the ‘simple’ approach to estimating the cost of debt which focusses on one type of debt. An alternative, which considers each option a regulated provider has for raising debt (eg, issuing bank debt, or issuing bonds overseas) is the ‘complex approach’.⁷¹⁸
- 6.284 We have decided against the complex approach because a lot of the information on other forms of debt is generally not publicly available, requires several subjective assumptions, and requires firm-specific data.
- 6.285 Given this approach, we decided not to take into account other types of debt (eg, bank debt, non-vanilla corporate bonds, foreign issued bonds) that may have different issuance costs. It is important that our assumptions for debt issuance costs are consistent with our final approach to estimating the debt premium because in practice there will be trade-offs between the interest rate paid and debt issuance costs for different forms of debt.
- 6.286 Further details on how we reached the compensation for ‘potential’ additional costs are provided below.

Compensation for potential costs of brokerage and wholesale/retail bonds

- 6.287 We have decided that brokerage is likely to result in a debt issuance cost and is therefore a factor contributing to our final decision to allow a higher debt issuance cost than the direct results of the debt survey.
- 6.288 Brokerage is a cost associated with a retail bond that can significantly increase the price of debt issuance.⁷¹⁹
- 6.289 Although we consider that brokerage costs may be required to issue bonds efficiently, we note that:
- 6.289.1 issuing wholesale bonds does not require the payment of brokerage, but these types of bonds are included in our dataset for estimating the debt premium;⁷²⁰
 - 6.289.2 issuing retail bonds does not necessarily require the payment of brokerage, dependent on market conditions; and

⁷¹⁸ See paragraphs 6.182-6.193.

⁷¹⁹ As part of the 2016 review of the IMs relating to suppliers of electricity lines services, gas pipeline services, and specified airport services, determined under Part 4, we considered evidence on the appropriate allowance for brokerage.

⁷²⁰ Wholesale bonds tend to have slightly higher interest rates due to the lower number of available purchasers. However, we note that the majority of corporate bonds used to estimate the debt premium recently are retail bonds.

- 6.289.3 the regulatory reforms made with the enactment of the Financial Markets Conducts Act (**FMCA**) appear to have reduced the costs for repeat issues of retail bonds, which may lower the need for brokerage payments.
- 6.290 From the evidence available, we conclude that in certain circumstances it *may* make sense to pay brokerage but at other times, particularly for repeat-issue retail bonds, it may not be required. As a result, brokerage is one of that factors that has led us to allowing a debt issuance cost higher than the direct results, of 9-10 bps, of the confidential survey.

Compensation for potential credit rating costs and cost of headroom/standby facilities

- 6.291 Credit rating costs and cost of headroom/standby facilities are potential further factors to include in debt issuance costs.
- 6.292 We recognise, given our approach to estimating the debt premium, that a regulated provider is likely to maintain a credit rating and there may be costs associated with maintaining a credit rating (for example credit rating agency fees).
- 6.293 We consider that standby facilities are a prudent aspect of debt management, but that these facilities are generally associated with the use of shorter-term debt.
- 6.294 We do not consider that under our simple approach there would be a requirement for both standby facilities and cost of carry for regular refinancing of domestic bonds.
- 6.295 We consider that there may be a small cost associated with maintaining liquidity under our simple approach and this is therefore another factor leading us to allow a debt issuance cost higher than the direct results of the 2016 confidential survey.⁷²¹

Compensation for new issue premium

- 6.296 New issue premiums are potential further factors in debt issuance costs. The ‘new issue premium’ is a potential discount that firms may have to apply to enable them to offer new debt into the bond markets.
- 6.297 We have considered new issue premiums as a potential further factor in debt issuance costs. Specifically, we have considered whether new issue premiums are observed in New Zealand and the appropriate level for these.

⁷²¹ The average debt issuance cost provided in the 2016 debt survey was 9 bps p.a. when averaged over the original tenor of the bond, and 10 bps p.a. when the costs are assumed to be averaged over a five-year term. We note that, as a result of the 2016 review of the IMs relating to suppliers of electricity lines services, gas pipeline services, and specified airport services, determined under Part 4, we concluded that credit rating costs and cost of headroom/standby facilities are factors that lead to allowing a debt issuance cost higher than the direct results of the 2016 confidential survey.

- 6.298 We recognise that there may be additional costs associated with a new issue premium at certain times but consider that it is difficult to determine what the correct level of these should be.
- 6.299 We note that our use of bid rates rather than mid-rates would provide a small benefit to the regulated provider which would provide some compensation for any costs incurred as a result of the new issue premium.⁷²²
- 6.300 We consider that there may be a small cost associated with new issue premiums and this is therefore another factor leading us to allow a debt issuance cost higher than the direct results of the 2016 confidential survey.⁷²³

Upward adjustment to debt issuance costs on a pro rata basis

- 6.301 Our final decision is to make an upward adjustment to debt issuance costs for three- or four-year regulatory periods on a pro rata basis where:
- 6.301.1 the allowance for a three-year regulatory period is 33bps (estimated as $33\text{bps} = 20\text{bps} \times (5/3)$); and
 - 6.301.2 the allowance for a four-year regulatory period is 25bps (estimated as $25\text{bps} = 20 \times (5/4)$).
- 6.302 The debt issuance cost allowance of 20bps is estimated based on a five-year regulatory term. For a shorter regulatory period, we consider that debt issuance costs would be relatively higher as a proportion of total annual debt costs, and that the 20bps should therefore be scaled up on a pro rata basis.
- 6.303 One reason for this higher cost for a shorter regulatory period is that the number of interest rate swaps that regulated providers make will be invariant to the length of the regulatory period.
- 6.304 In other words, regulated providers making interest rate swaps to align the risk-free component of debt portfolios to the current rates, *ie* align to the current interest rate at which WACC is set, will make the same number of swaps for a three-year regulatory period as for a five-year regulatory period.
- 6.305 We acknowledge that some of the debt issuance costs will not vary with the length of the regulatory period. For example, fixed costs such as the legal costs associated with issuing debt will not change depending on the length of the period. However,

⁷²² See paragraphs 6.126- 6.127.

⁷²³ We note that, as a result of the 2016 review of the IMs relating to suppliers of electricity lines services, gas pipeline services, and specified airport services, determined under Part 4, we concluded that new issue premiums are a factor that lead to allowing a debt issuance cost higher than the direct results of the 2016 confidential survey.

these fixed costs are not always consistent as a proportion of total issuance costs across time and can vary with market conditions, so our simplifying assumption is that we adjust the five-year allowance on a linear basis.

- 6.306 On this basis we have decided to use pro rata adjusted debt issuance cost allowances of 33 bps and 25 bps for three- and four-year regulatory periods respectively. We note that we have decided to adjust the total debt issuance costs allowance on a pro rata basis, not only the swap cost component.

We have not included additional compensation for foreign issuance costs

- 6.307 Our draft decision did not include an additional allowance for issuing debt in foreign markets. This has also been discussed in previous decisions on debt issuance costs.⁷²⁴

- 6.308 In submissions on our draft decision, Chorus and Sapere (for Chorus) submitted that our debt issuance costs allowance should include an additional allowance associated with costs for issuing bonds in foreign markets. Sapere states that the New Zealand market is unlikely to have sufficient depth for the size of bond issues that Chorus needs.⁷²⁵ However, it did not provide specific evidence to support this claim.

- 6.309 Sapere suggests that a five-year period would have costs of 0.22% to 0.27%, giving a midpoint of 0.25% (compared to our draft decision of 0.20%). Sapere's proposed adjusted value for a four-year regulatory period is 0.31% and 0.42% for a three-year period.⁷²⁶

- 6.310 We use New Zealand bonds as a benchmark, consistent with our overall approach to estimating cost of debt. If we include foreign market issuance this would be inconsistent with how we calculate the rest of the cost of debt. Our decision is to maintain our draft decision not to provide additional compensation for issuing in overseas markets.

- 6.311 The total cost of debt for issuing in overseas markets (including the risk-free rate, debt premium and debt issuance components) is not generally publicly available or transparent.⁷²⁷ The use of non-publicly available data would reduce certainty to

⁷²⁴ Commerce Commission “Input methodologies (Airport Services) reasons paper” (22 December 2010), paras H5.77 – H5.96.

⁷²⁵ Sapere “The Cost of Capital Input Methodologies for Fibre” (report prepared for Chorus, 27 January 2020), para 105.

⁷²⁶ Sapere “The Cost of Capital Input Methodologies for Fibre” (report prepared for Chorus, 27 January 2020), para 106.

⁷²⁷ Practically, this would involve having to estimate multiple risk-free rates and debt premiums for various overseas markets to estimate the total cost of debt in overseas markets that the supplier would be required to cover for the debt financing.

suppliers and users as it may impede their ability to independently replicate the estimation process.

- 6.312 In response to Sapere's submission point regarding the New Zealand market's inability to support bond issuances of the size required by Chorus, we note that there are several corporations with more debt outstanding in the New Zealand market compared with Chorus.⁷²⁸
- 6.313 Our decision is not to allow an additional allowance for issuing debt in foreign markets. We allow suppliers an allowance that reflects the costs to issue debt in the New Zealand market, and, if it is cheaper (as a total cost of debt) to issue in foreign markets, suppliers can use the allowance provided to do so.

Term credit spread differential (TCSD)

Summary of final decision

- 6.314 The cost of capital IM includes a TCSD allowance to compensate regulated providers for the additional debt premium that can be incurred from issuing debt with a longer original term than a five-year term.⁷²⁹
- 6.315 Our final decision is to calculate the TCSD with a formula that uses a fixed linear relationship to determine the additional debt premium associated with debt issued with an original maturity term of more than five years.
- 6.316 This formula combines:
 - 6.316.1 the additional debt premium associated with each issuance of debt that has an original term to maturity in excess of the five years (the 'spread premium');
 - 6.316.2 a negative adjustment to take account of the lower per annum debt issuance costs that are associated with longer-term debt.

⁷²⁸ For example, Fonterra and several financial institutions have more outstanding debt in the New Zealand bond market as at 21/8/2020. Transpower and Auckland International Airport also have a similar amount of outstanding debt in the New Zealand bond market.

⁷²⁹ Although the TCSD is conceptually a component of the cost of capital, it is treated as an adjustment to cash flows and is only available to regulated providers who have issued long-term debt to manage their refinancing risks.

- 6.317 We have decided that the TCSD allowance in the final IM determination caps the qualifying debt “original tenor” at ten years.⁷³⁰ We consider that this avoids over-compensation.

Term credit spread differential

- 6.318 The TCSD is additional compensation for longer-term debt.⁷³¹ It is an alternative to assuming a longer debt term in our estimation of the debt premium. The TCSD allowance compensates regulated providers for the additional debt premium that can be incurred from issuing debt with a longer original tenor than a five-year term. Our decision is that this TCSD allowance would apply to regulated providers only where such debt is issued.

- 6.319 The TCSD is conceptually comprised of two elements:

- 6.319.1 the additional debt premium associated with each issuance of debt that has an original term to maturity in excess of our base five-year debt premium ('the spread premium'); and
- 6.319.2 a negative adjustment to take account of the lower per annum debt issuance costs associated with longer-term debt.

- 6.320 In submissions on our draft decision, Vodafone state that there is little evidence that a TCSD is necessary, noting that the draft decision appears to be heavily in favour of local fibre companies (LFCs).⁷³² This was also supported by 2 Degrees in its cross-submission.⁷³³

- 6.321 We do not want to disincentivise suppliers from issuing bonds that are in excess of a five-year term to maturity if this is prudent and efficient for the supplier to do so. The TCSD allowance is only applied if a bond is issued with an original term to maturity in excess of five-years and the weighted average original term to maturity of its debt portfolio is also greater than five years. The TCSD applies up to a

⁷³⁰ We note that this approach is different to that used for the IMs relating to the supply of electricity lines services and gas pipeline services determined under Part 4. Those IMs specify a minimum original tenor of “greater than 5 years” but does not specify a maximum – see clause 2.4.7 of the *Electricity Distribution Services Input Methodologies Determination 2012*, as amended, *Gas Distribution Services Input Methodologies Determination 2012*, as amended, and *Gas Transmission Services Input Methodologies Determination 2012*, as amended, and clause 2.4.8 of *Transpower Input Methodologies Determination 2010*, as amended which specify that “Qualifying debt” means a line of debt- (a) with an original tenor greater than 5 years; and (b) issued by a qualifying supplier.”

⁷³¹ We note that this was introduced in our IMs relating to the supply of electricity lines services and gas pipeline services determined under Part 4.

⁷³² For example, see Vodafone “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 2.

⁷³³ 2 Degrees “Commerce Commission Fibre Input Methodologies Cross-submission” (17 February 2020), p4

maximum of ten years for qualifying debt. If there are no relevant bonds that meet these criteria, there will be no TCSD adjustment.

Why we prefer to set out a formula to calculate the TCSD

- 6.322 A TCSD provides an additional allowance for qualifying firms based on the size of their debt portfolio and the value of the TCSD. We frame this as the debt portfolio, as at the date of that regulated provider's most recently published audited financial statements, that has a weighted average original tenor greater than five years.
- 6.323 We note that we have previously used two different methods, in other sectors, to calculate the TCSD.
 - 6.323.1 Through the use of Bloomberg NZ 'A' fair value curve, which is no longer published.
 - 6.323.2 Estimating the fixed relationship between the value of the spread premium and the original term of the debt in excess of the benchmark five-year term based on historical data.
- 6.324 Given the practical difficulties associated with the first method, and in particular the availability of the data, our final decision is to use an estimated fixed relationship.

Why we decided to adjust for debt issuance costs

- 6.325 Where an issue of debt qualifies for this allowance, to be consistent, the amortisation period applied to the notional debt issuance costs attributed to the issue of debt would be adjusted to reflect the actual original period to maturity.

Why we cap the allowance at ten years

- 6.326 When we make allowance for the spread premium, we estimate a straight-line relationship for simplicity given the additional complexity of curve fitting, data requirements and materiality, but we understand it is more akin to a curve. Beyond ten years we consider that the incremental premium becomes immaterial against the reduced debt issuance costs.

How we calculate the TCSD allowance

- 6.327 We calculate the TCSD allowance in two parts: the spread premium and the debt issuance cost adjustment.
- 6.328 The spread premium is estimated with a formula that uses a fixed linear relationship, where:⁷³⁴

⁷³⁴ Commerce Commission "Input methodologies review decision, Topic Paper 4: Cost of capital issues" (December 2016), paragraphs 898-899.

- 6.328.1 the fixed relationship is determined by analysing the observed spread premiums for NZ domestic vanilla bonds with remaining tenor greater than five years and an estimate (using interpolation) of the equivalent government bond rate; and
- 6.328.2 a linear slope is then fitted to the data points associated with a specific credit rating.
- 6.329 A key assumption required to estimate the spread premium is to obtain an estimate of the five-year debt premium so that the ‘spread’ can be estimated.⁷³⁵ This estimate is required for each period we use in our analysis.
- 6.330 We require an estimate of this relationship in line with our final decision on credit rating of BBB bonds.⁷³⁶ The most relevant evidence we have before us is from our work in Part 4 for electricity line businesses and gas pipeline businesses. The fixed relationship was previously estimated by analysing the observed spread premiums for NZ domestic vanilla bonds with remaining tenor greater than five years and an estimate of the equivalent government bond rate. A linear slope was fitted to this data.⁷³⁷
- 6.331 We compared a range of spread premium estimates derived from five-year debt premium estimates, with a target credit rating of BBB+ for EDBs from four different samples, as illustrated in Figure 6.6, and concluded that a spread premium of 7.5 bps was a reasonable estimate.⁷³⁸

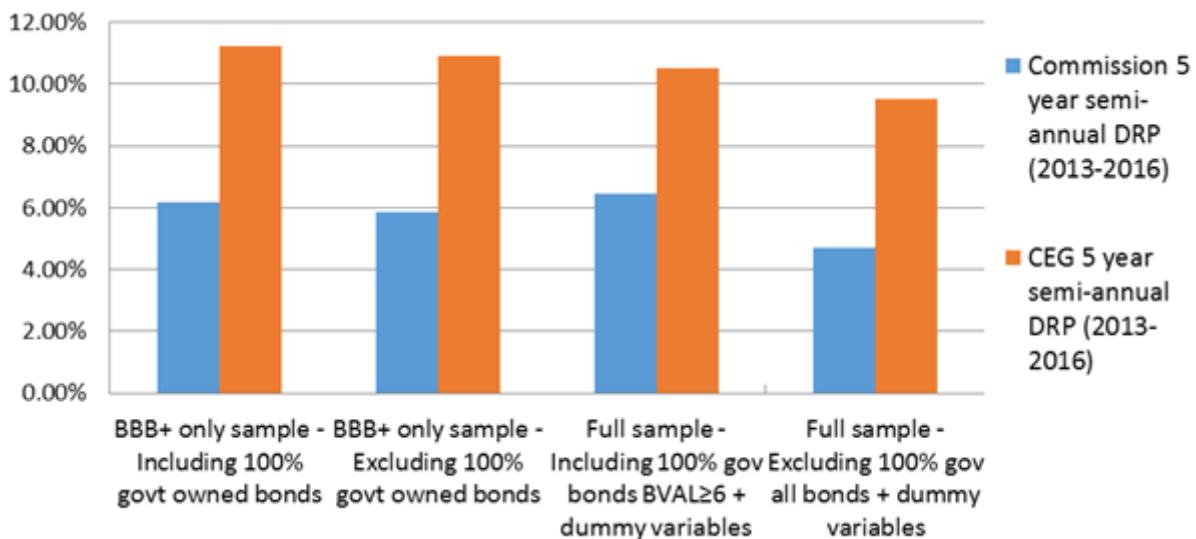
⁷³⁵ For example, when evaluating a seven-year corporate bond, we also need an estimate of the five-year debt premium, so the two-year spread can be estimated.

⁷³⁶ This has changed from our draft decision to use a credit rating of BBB+. This is explained later in the Credit Rating section.

⁷³⁷ We previously undertook these calculations for BBB+ bonds for the purposes of determining the TCSA allowance in our IMs relating to the supply of electricity lines services and gas pipeline services determined under Part 4.

⁷³⁸ Commerce Commission “Input methodologies review decision – Topic Paper 4: Cost of capital issues” (20 December 2016), paras 170 – 189.

Figure 6.6 Comparison of spread premiums estimates using CEG and Commission estimates of the five-year debt premium



We have decided to maintain the 7.5 bps spread premium

- 6.332 In submissions on our draft decision, Chorus argues that the Commission should change the TCSD adjustment premium values to match the credit rating of BBB for regulated FFLAS (rather than our proposed BBB+ credit rating in our draft decision).⁷³⁹
- 6.333 We have changed our draft decision to use the TCSD adjustment premium values based on BBB+ bonds. The TCSD adjustment premium values will match the credit rating of BBB for regulated providers. Therefore, we need to assess whether the spread premium (the additional debt premium for each additional year of term to maturity above five years) of a BBB target rated supplier would be different from that of a BBB+ target rated supplier.
- 6.334 Our estimate used in the draft decision of 7.5 bps was estimated as part of the 2016 IM Review for electricity distribution services, gas pipeline services, specified airport services and Transpower under Part 4.⁷⁴⁰ As part of this process we assess whether the 7.5 bps estimate, which was used for a BBB+ target rated supplier, remains appropriate for a BBB target rated supplier.

⁷³⁹ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), para 218.

⁷⁴⁰ Commerce Commission "Input methodologies review decision – Topic Paper 4: Cost of capital issues" (20 December 2016), Attachment E.

- 6.335 We have undertaken analysis based on annual NSS term structure curves (used to estimate the debt premium for each year of term to maturity above five years) from 2014 to 2019 data.⁷⁴¹ We have used a sample including bonds with the target credit rating (BBB) and included bonds from one tier each side of the target rating (ie, BBB+ and BBB-) to increase the sample size and robustness of the analysis. However, there were no applicable BBB- bonds during our analysis period, so the analysis is based on a sample of BBB and BBB+ bonds (the NSS methodology includes a dummy variable for the average difference in debt premium between BBB and BBB+ debt premiums).
- 6.336 Table 6.3 below demonstrates the estimated spread premiums for each annual analysis period.

Table 6.3 Average historical spread premium based on NSS curve

Relevant time period	Spread premium (bps)
DPRY 2020 (1 September 2018 – 31 August 2019)	9.5
DPRY 2019 (1 September 2017 – 31 August 2018)	1.8
DPRY 2018 (1 September 2016 – 31 August 2017)	5.0
DPRY 2017 (1 September 2015 – 31 August 2016)	12.0
DPRY 2016 (1 September 2014 – 31 August 2015)	9.7
Average	7.6

- 6.337 We have also performed the analysis based on a BBB-only sample as a cross-check. The average spread premium based on the BBB only sample was 8.6 bps, although there was less data available in the sample used in the analysis.
- 6.338 The average spread premium of 7.6 bps based on the extended BBB and BBB+ sample is very close to our draft decision of 7.5 bps and previous analysis undertaken as part of the 2016 IM review where we looked at a number of different samples to estimate the spread premium for a target rating of BBB+. This indicates that for BBB and BBB+ bonds the average slope of the debt premium appears to be relatively consistent.
- 6.339 We therefore maintain our draft decision to have a TCSD allowance and to calculate the TCSD allowance with a formula using a spread premium of 7.5 bps to determine

⁷⁴¹ This includes using our debt premium bond sample based on our bond hierarchy to identify an appropriate bond sample. For each annual sample period outlined in Table 6.3, we use the bid yield to maturity estimates from Bloomberg to estimate the debt premium and then estimate a term structure curve using the NSS methodology. This allows us to estimate the change in debt premium when increasing the term to maturity by one-year increments.

the additional debt premium associated with debt issued with an original maturity term of more than five years.

Implementation of the TCSD adjustment

- 6.340 As previously noted, the amortisation period applied to the notional debt issuance costs would be adjusted to reflect the actual original period to maturity. This adjustment component of the TCSD, the debt issuance cost adjustment, is calculated based on our allowance of 0.20% p.a. issuance costs for debt with a five-year original term. This is demonstrated in Table 6.4 below.
- 6.341 Table 6.4 provides the lower debt issuance costs associated with debt that has a longer original tenor and also how this translates to a debt issuance cost adjustment as part of the TCSD calculation.

Table 6.4 Debt issuance costs adjustment factor

Tenor	5	6	7	8	9	10
Issuance costs (0.20% × 5/tenor)	0.20%	0.17%	0.14%	0.13%	0.11%	0.10%
Debt issuance adjustment	0.00%	-0.03%	-0.06%	-0.07%	-0.09%	-0.10%

- 6.342 From combining the credit spread premium and the issuance costs adjustment, a relationship between the original tenor of issued debt and the TCSD can be determined.

Table 6.5 TCSD adjustment for different original tenor length

Tenor	5	6	7	8	9	10
Spread premium	0.00%	0.075%	0.15%	0.225%	0.30%	0.375%
Debt issuance adjustment	0.00%	-0.03%	-0.06%	-0.07%	-0.09%	-0.10%
TCSD premium	0.00%	0.05%	0.09%	0.16%	0.21%	0.28%

- 6.343 To incorporate the TCSD formula for regulated providers in the IMs our final decision is to:

- 6.343.1 provide a formula in which the input would be the original tenor of the relevant debt issuance – this input would not need to be rounded;
- 6.343.2 use the formula to calculate the TCSD premium for each bond by determining the relevant spread premium and debt issuance costs adjustment;

- 6.343.3 set the maximum tenor allowed in the calculation to be ten years; and
- 6.343.4 apply those values to any qualifying debt which would then enter the cashflows.

Credit rating

Summary of our decision

6.344 Our decision is to set a service-wide notional target credit rating using the S&P long-term credit rating of BBB to estimate the cost of capital for the supply of FFLAS by regulated providers.

6.345 This decision applies in relation to both PQ and ID regulation.

6.346 We received several submissions on our draft decision to set the target credit rating at BBB+. With the exception of Vodafone, who supported our draft decision, these submissions opposed BBB+, favouring BBB.⁷⁴² Having considered the matter further in light of submissions, we now consider that BBB, at one notch above the minimum investment grade, is a sufficient and appropriate signal on the prudent long-term level of exposure to credit default risk for regulated providers of FFLAS.

General explanation of credit rating

6.347 Credit ratings are an indication of a borrower's creditworthiness. The higher the rating, the lower the assessed likelihood of default. The lower the credit rating, the higher the cost of debt and the overall cost of capital and the higher the risk of a regulated provider experiencing financial distress.

6.348 S&P's minimum long-term credit rating that is considered investment grade is BBB-. We consider that the credit rating should provide a sufficient margin above the minimum required for investment grade and therefore be estimated by reference to a bond with a S&P' long-term credit rating of BBB (or equivalent rating from another recognised credit rating agency).

Why we use a service-wide notional estimate

6.349 Our decision is that we will set a service-wide notional credit rating for regulated providers.

⁷⁴² Vodafone "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 3; Sapere "The cost of capital input methodologies for fibre" (report prepared for Chorus, 30 January 2020), paragraph 96; Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraphs 206 and 212; Telstra Super "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 2; L1 Capital "Submission on Fibre input methodologies – Draft decision" (30 January 2020), pages 16-18; Black Crane Capital "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 3.

- 6.350 We consider that the long-term benefit of end-users is best served by properly capitalised businesses that can refinance themselves as necessary, including in economic downturns or shock events. We consider that a service-wide notional rating would strike an appropriate balance between the outcomes in s 162(a) of regulated providers having incentives to innovate and to invest, and s 162(d) of regulated providers being limited in their ability to extract excessive profits, thus best giving effect to the purpose of Part 6 in s 162, while still promoting workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services under s 166(2)(b).
- 6.351 To best give effect to the s 166(2) purposes, we must consider the alternative to a service-wide notional estimate. In our view the main alternative is to use the regulated provider's actual credit rating. A notional rating is specified as, if regulated providers' actual credit ratings were used, they may have less incentive to maintain an appropriate credit rating given the increased costs associated with a lower credit rating would be partially compensated through the WACC, leading to potentially adverse implications for end-users.
- 6.352 As with leverage which we discuss in paragraphs 6.607 to 6.609, if we were to set credit rating at the actual credit rating of regulated providers, such providers would have a reduced incentive to maintain their credit rating at a prudent level, which could be detrimental to the long-term benefit of end-users by raising the risk of bankruptcy and increasing their cost of capital as the costs would be at least partially passed on to consumers.
- 6.353 Specifically, as credit rating worsens, the adverse implications for end-users relate to:
- 6.353.1 increased credit default risk; and
 - 6.353.2 a higher cost of capital allowance and eventually higher prices, assuming the use of a regulated provider's actual credit rating in the cost of debt.
- 6.354 There are potentially significant costs and risks to end-users if a regulated provider becomes financially distressed. For example, a regulated provider in financial distress may curtail maintenance spending or reduce or defer efficient investment in network assets. This, in turn, may adversely affect the quality and reliability of regulated FFLAS experienced by end-users. These outcomes are inconsistent with the purposes of s 162(a) and (b) and excessive levels of debt are therefore not to the long-term benefit of end-users. Hence our decision is to decouple the regulated provider's actual credit rating from the one used to estimate the cost of capital for the supply of FFLAS by regulated providers.

Our approach to setting a notional target credit rating

6.355 In our draft decision we considered two options for setting the notional service-wide benchmark credit rating value.

6.355.1 **Option 1: ‘comparator sample approach’** – estimating the average credit rating of the comparator companies in the asset beta comparator sample (from which we also derive the leverage) and applying this value as the service-wide notional target credit rating, possibly with an adjustment on a defined basis.⁷⁴³

6.355.2 **Option 2: ‘notional credit rating approach’** – selecting a target credit rating through judgement to reflect an appropriate level of credit default risk, while also having regard to the results from the comparator set, and applying this as the service-wide notional target credit rating.⁷⁴⁴

6.356 Our final decision to set a service-wide notional target credit rating value is option 2, and this remains unchanged from the draft decision.

6.357 Our view is that an appropriate notional credit rating should:

6.357.1 provide an adequate margin above the minimum long-term investment grade rating of BBB-; and

6.357.2 protect against economic downturns or shocks that would lead to financial distress, such that an efficient operator will still have satisfactory access to debt capital markets at reasonable costs.

Why we do not favour basing the credit rating entirely on the comparator sample set

6.358 We consider that the comparator sample approach is unlikely to best give effect to the s 166(2) purposes as the comparator sample average could drop below investment grade in the future, with adverse consequences for end-users.⁷⁴⁵ For example, if regulated providers target our notional credit rating, set marginally above sub investment grade, a shock could tip those providers’ ratings below investment grade. This will impact those providers’ access to debt capital markets at

⁷⁴³ Where there are options for the types of average estimated (simple or weighted mean, median, mode) and where an adjustment to the average values could also be considerations.

⁷⁴⁴ We note that this is comparable to our approach for the IMs relating to the supply of electricity lines services, gas pipeline services, and specified airport services, determined under Part 4.

⁷⁴⁵ We consider that an average credit rating, mechanistically derived from the comparator sample, could fall into sub investment grade, and this is because there is no certainty on the average value that would emerge in future IM statutory reviews.

a reasonable cost, with the higher costs and risks borne by end-users, as explained in paragraphs 6.351-6.354.

- 6.359 Several submitters did not support our draft decision to use the notional target credit rating approach. These submitters appeared to prefer option 1 - basing the notional credit rating on the comparator set used for estimating the asset beta. L1 Capital for example, submitted that the credit rating is the outcome of the comparator set process, reflecting the risk profile of companies closest to Chorus consistent with the asset beta calculations.⁷⁴⁶
- 6.360 Chorus and Sapere expressed concern with the notional target credit rating proposal, which they consider undermines the process of estimating parameters from the comparator sample.⁷⁴⁷ They submitted that this results in an inconsistency between the debt premium estimate and parameter estimates for asset beta and leverage.⁷⁴⁸ They also submitted that expert advisers to the European Union recommended estimating the target credit rating from the target leverage or vice versa.⁷⁴⁹ Submitters also considered that the practice of other regulators is relevant.⁷⁵⁰
- 6.361 Chorus and Sapere suggested that CEPA supports an interrelationship where the credit rating is estimated from the leverage estimate or the asset beta comparator set.⁷⁵¹ Chorus submitted:⁷⁵²

The Commission has chosen a credit rating benchmark on the sole basis of investment grade ratings. This undermines the process of using the comparator sample for estimating the related parameters of asset beta and leverage.

⁷⁴⁶ L1 Capital "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 18.

⁷⁴⁷ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 207; Sapere "The cost of capital input methodologies for fibre" (report prepared for Chorus, 30 January 2020), paragraph 99b.

⁷⁴⁸ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 207; Sapere "The cost of capital input methodologies for fibre" (report prepared for Chorus, 30 January 2020), paragraph 99b; Black Crane Capital "Submission on Fibre Input Methodologies: Emerging Views Paper" (15 July 2019), page 1.

⁷⁴⁹ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 208; Sapere "The cost of capital input methodologies for fibre" (report prepared for Chorus, 30 January 2020), paragraph 99b.

⁷⁵⁰ Sapere "The cost of capital input methodologies for fibre" (report prepared for Chorus, 30 January 2020), paragraph 99c.

⁷⁵¹ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraphs 208-209; Sapere "The cost of capital input methodologies for fibre" (report prepared for Chorus, 30 January 2020), paragraph 99b.

⁷⁵² Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraphs 207-209.

As Sapere notes, expert advisers to the European Commission (The Brattle Group, 2016) and Ofgem (PricewaterhouseCoopers, 2009), have recommended estimating the target credit rating from the target leverage, or vice versa. This ensures the estimated cost of debt is consistent with the asset beta and leverage assumptions.

This interrelationship between the parameters is also supported by CEPA.

6.362 We understand that other regulators may use approaches closer to a pure comparator sample approach. Other regulators, however, operate in different statutory frameworks with different purpose statements and we must exercise our own judgement. We must best give, or be likely to best give, effect to the s 166(2) purposes.⁷⁵³

6.363 While we recognise that the credit ratings in the comparator set provide useful information in forming our view on the appropriate credit rating, for the following reasons our decision is not to base the credit rating purely on the asset beta comparator set.

6.363.1 While there are strong reasons for ensuring consistency with the leverage of the comparator set (to avoid having to estimate debt betas) as we explain at paragraphs 6.597 to 6.628 the same is not true of the credit rating.

6.363.2 There is no precise mapping between the credit rating of an entity and its leverage, leverage is one element of the factors which determine a credit rating. For example, Standard & Poor's have described their corporate analytical methodology for determining credit ratings as:⁷⁵⁴

The first step is analyzing a company's business risk profile, followed by an evaluation of its financial risk profile. We combine our assessments to determine an issuer's anchor. We then take several subsequent analytical steps using forward-looking analysis and analytic judgement to determine the ultimate rating conclusion...

6.363.3 The comparator sample approach to credit rating is unlikely to best give effect to the s 166(2) purposes as the comparator sample average could drop below investment grade in the future, for example following a shock event.

6.363.4 The comparator set, by its nature, would not take into account how best to address the concerns around setting a credit rating close to non-

⁷⁵³ Section 166.

⁷⁵⁴ Standard & Poor's Ratings Services "Corporate Ratings Methodology: Transparency, Comparability" (2014).

investment grade. We consider this is an important consideration in determining what credit rating is to the long-term benefit of end-users.

- 6.363.5 It would also be practically difficult to determine a credit rating estimate from the asset beta sample, due to limited credit rating data.
- 6.364 The notional credit rating approach ensures that the benchmark credit rating does not fall below investment grade in the future. Although the credit rating decision does not determine a regulated supplier's actual credit rating, we consider that this is an important consideration in best giving effect to the purpose of Part 6 in s 162 as discussed in paragraphs 6.357 to 6.359 and 6.363.3 to 6.363.4.
- 6.365 We have had regard to the comparator set by checking that the comparator set is not inconsistent with our judgment of the appropriate credit rating as we discuss at paragraph 6.382.3.
- 6.366 We note that CEPA's reports show that CEPA does not agree that strict consistency is required between the leverage and credit rating parameters as Chorus and Sapere suggest. CEPA responded to these submitters:⁷⁵⁵

As noted in our October 2019 response to submissions, it is important to note that the average leverage for each group includes companies that do not have a credit rating. Therefore, we cannot conclude – as some submissions have proposed – that the average credit rating of the comparator sample is consistent with the average leverage.

- 6.367 CEPA's view, which matches our own, is that:⁷⁵⁶

 - [T]here is no precise mapping between leverage and credit ratings, as ratings agencies will take a range of other factors into account.

- 6.368 We agree with CEPA that strict consistency is not possible given the comparator set, and not necessary.
- 6.369 We continue to consider, that there is not much weight to arguments against the notional credit rating approach based on inconsistency with parameters estimated from the comparator set as we consider that:

⁷⁵⁵ Cambridge Economic Policy Associates "Cost of capital for regulated fibre telecommunication services in New Zealand: Response to submissions on the Input Methodologies Draft Decision" (13 October 2020), page 36.

⁷⁵⁶ Cambridge Economic Policy Associates "Cost of capital for regulated fibre telecommunication services in New Zealand: Response to submissions on the Input Methodologies Draft Decision" (13 October 2020), page 36.

- 6.369.1 there is no precise mapping between the credit rating of an entity and its leverage, leverage is one element of the factors which determine a credit rating;
- 6.369.2 only the notional approach ensures that the benchmark credit rating does not fall below investment grade in the future;
- 6.369.3 it would be practically difficult to implement a credit rating estimate solely from the asset beta sample, due to limited credit rating data; and
- 6.369.4 in the case of this decision there is no inconsistency between our judgment of the appropriate credit rating and an estimate of either BBB+ or BBB from the comparator set based on the comparators where relevant data is available.

Our decision to specify the S&P long-term credit rating of BBB

- 6.370 Our decision of a S&P's credit rating of BBB will be used in determining the debt premium for regulated providers. In addition to inputting into the debt premium estimate, the notional credit rating also signals the prudent long-term level of exposure to credit default risk in a regulated sector.
- 6.371 We consider that both BBB+ and BBB S&P long-term credit ratings (or equivalent rating from a recognised credit rating agency) are options for benchmarking the allowed regulated service-wide debt premium for regulated providers. We consider that the notional long-term credit rating used for estimating the regulated service-wide notional debt premium should reflect a prudent long-term level of exposure to credit default risk.
- 6.372 The notional long-term credit rating should be, and remain, comfortably within an 'investment grade' credit rating as defined by the major credit rating agencies. In our revised judgement, the S&P long-term credit rating of BBB (or equivalent rating from a recognised agency) provides an adequate margin of safety with respect to regulated FFLAS.
- 6.373 Published long-term credit ratings, and the associated market yields, on corporate bonds are influenced by a range of factors. These factors include the nature of the entity (not just regulated FFLAS, unless it is an entity which operates a stand-alone or 'pure play' business that corresponds to a single regulated service); the owner of the entity and the assessed likelihood of the owner standing behind the entity and its debt, if it were to get into difficulty. From a regulatory perspective, we are interested in the long-term credit rating of the regulated provider of regulated FFLAS on a stand-alone basis. However, in practice, we are unable to ring fence regulated FFLAS (and its associated credit rating) from the remainder of the entity.

- 6.374 We recognise that the notional credit rating is a benchmark credit rating, and like other WACC components, does not bind regulated providers' optimal financing structure decisions. However imperfect, our benchmark credit rating is one of the few tools we have available to help protect end-users from adverse refinancing distress.
- 6.375 Our draft decision was to set a service-wide notional target credit rating using the S&P long-term credit rating of BBB+. Our final decision is to set the credit rating at BBB, which is a change from our draft decision.
- 6.376 We received several submissions on this issue. With the exception of Vodafone, who supported our draft decision to set the target credit rating at BBB+, these submitters opposed BBB+, favouring BBB.⁷⁵⁷

Why we consider that the BBB credit rating provides a sufficient margin above non-investment grade ratings

- 6.377 We consider that the appropriate notional credit rating is established by reference to the minimum investment grade credit rating BBB-. Credit ratings are an indication of a borrower's creditworthiness. The higher the rating, the less the likelihood of default. There is no precise science to determining the appropriate credit rating so we must exercise judgement.
- 6.378 In our draft decision we noted that when we consider the potential impact of times of financial stress, a single notch above the minimum credit rating may be insufficient. Several submitters including, Sapere in its report for Chorus, submitted that BBB provides a sufficient buffer over BBB-.⁷⁵⁸ We have considered this view and recognise that:
- 6.378.1 our notional credit rating is a benchmark credit rating and does not bind regulated providers' financing decisions;
 - 6.378.2 Chorus' S&P long-term credit rating remained at BBB despite financial distress in 2013 and 2014 when its revenues dropped significantly

⁷⁵⁷ Vodafone "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 3; Sapere "The cost of capital input methodologies for fibre" (report prepared for Chorus, 30 January 2020), paragraph 96; Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraphs 206 and 212; Telstra Super "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 2; L1 Capital "Submission on Fibre input methodologies – Draft decision" (30 January 2020), pages 16-18; Black Crane Capital "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 3.

⁷⁵⁸ Sapere "The cost of capital input methodologies for fibre" (report prepared for Chorus, 30 January 2020), paragraph 98; TelstraSuper "Fibre Emerging Views submission" (16 July 2019), section 4.

(following the Commerce Commission final IPP decision for UBA in November 2013);⁷⁵⁹ and

- 6.378.3 Crown Fibre Holdings specified an S&P long-term credit rating of at least BBB- for Chorus over the pre-implementation period (as some submitters noted)⁷⁶⁰, and that Chorus maintained BBB⁷⁶¹ and currently has a S&P long-term credit rating of BBB (stable)⁷⁶² but has been under pressure at various times with changes to its ratings.⁷⁶³
- 6.379 Consequently, in our judgement, we consider that these considerations support a notional credit rating of either BBB+ or BBB.

Why we consider that a BBB+ or BBB credit rating is not inconsistent with other elements of FCM

- 6.380 Some submitters, including Sapere for Chorus, questioned whether a BBB+ rating would be consistent with other assumptions such as leverage and that this may fail to achieve FCM.⁷⁶⁴
- 6.381 We note these submissions and we agree that it is important that the notional credit rating is not inconsistent with the leverage estimate. However, as we explained at paragraphs 6.366 to 6.369 strict consistency is not required or possible because there is no precise mapping between leverage and credit ratings. We also consider that it is not actually possible to estimate the credit rating with a comparator sample

⁷⁵⁹ Chorus' annual report announced a \$142 million annualised EBITDA impact and an implied \$1 billion funding shortfall by 2020. Chorus "Annual Report 2014" (24 August 2014), page 8.

⁷⁶⁰ L1 Capital "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 17; Sapere "The cost of capital for fibre input methodologies – response to Dr Lally" (report prepared for Chorus, 24 August 2020), para 24.

⁷⁶¹ Chorus "Annual Report 2012" (21 September 2012), page F.9; Chorus "Annual Report 2013" (29 August 2013), page 14; Chorus "Annual Report 2014" (24 August 2014), page 35; Chorus "Annual Report 2015" (23 August 2015), page 24; Chorus "Annual Report 2016" (29 August 2016), page 22; Chorus "Annual Report 2017" (28 August 2017), page 23; Chorus "Annual Report 2018" (27 August 2018), page 25; Chorus "Annual Report 2019" (26 August 2019), page 27; Chorus "Annual Report 2020" (24 August 2020), page 29.

⁷⁶² Chorus "Annual Report 2020" (24 August 2020), page 29.

⁷⁶³ S&P placed Chorus' long-term BBB rating on a negative outlook in 2014, returning this to BBB/stable in 2015. In 2014 Moody's downgraded Chorus' long-term rating from Baa2/negative to Baa3/negative; a move to Moody's minimum investment grade. The rating recovered to Baa2/stable in 2016. Chorus "Annual Report 2014" (24 August 2014), page 35; Chorus "Annual Report 2015" (23 August 2015), page 24; Chorus "Annual Report 2016" (29 August 2016), page 22. Moody's rating scale https://www.moodys.com/sites/products/productattachments/ap075378_1_1408_ki.pdf.

⁷⁶⁴ Sapere "The cost of capital input methodologies for fibre" (report prepared for Chorus, 30 January 2020), para 99; Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 55 and para 22.2-22.3, 207-209 and 219, and page 55; Black Crane Capital "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 3; L1 Capital "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 17.

that is consistent with that used for the other parameters. As CEPA has previously advised us, “*because not all companies in the sample are rated, we cannot infer that the average credit rating is consistent with the average leverage.*”⁷⁶⁵ We note here that CEPA remains comfortable with its original recommendation “that a credit rating of BBB/BBB+ is appropriate for the FFLAS providers”.⁷⁶⁶

6.382 We have checked for inconsistency by assessing whether the leverage point estimate of 29% falls within the range of leverages exhibited by BBB+ and BBB comparator firms in our sample. We note that:

- 6.382.1 the leverage of BBB+ rated comparator firms ranges from 17% to 42%;
- 6.382.2 the leverage of BBB rated comparator firms ranges from 19% to 55%; and,
- 6.382.3 both of which support a leverage of 29% and credit rating of BBB+ or BBB as not being inconsistent.

6.383 With respect to FCM, we acknowledge these submissions, and as we have previously noted, the purpose of the benchmark WACC is to provide for the financing costs of an efficient regulated provider. Consistent with our draft decision, as long as we consider that the credit rating is achievable, we consider that we provide for FCM.

6.384 Sapere submitted that we have underweighted our consideration of Chorus’ actual BBB credit rating, many relevant comparator companies, and BT in the UK as determined by Ofcom.⁷⁶⁷ Sapere submitted that Ofcom’s recent proposal for wholesale fixed services also adopts a BBB rating.⁷⁶⁸

6.385 We note that other regulators operate in different statutory frameworks with different purpose statements. We must make decisions that best give, or are likely to best give, effect to the s 166(2) purposes.⁷⁶⁹

6.386 We also affirm that we specify a notional rating because if regulated providers’ actual credit ratings were used, these providers may have less incentive to maintain an appropriate credit rating given that the increased costs associated with a lower

⁷⁶⁵ Cambridge Economic Policy Associates “Cost of capital for regulated fibre telecommunication services in NZ asset beta, leverage, and credit rating – Response to submissions” (19 November 2019), page 43.

⁷⁶⁶ Cambridge Economic Policy Associates “Cost of capital for regulated fibre telecommunication services in New Zealand: Response to submissions on the Input Methodologies Draft Decision” (13 October 2020), page 36.

⁷⁶⁷ Sapere “The cost of capital input methodologies for fibre” (report prepared for Chorus, 30 January 2020), paragraphs 99-99a.

⁷⁶⁸ Sapere “The cost of capital input methodologies for fibre” (report prepared for Chorus, 30 January 2020), paragraph 99b.

⁷⁶⁹ Section 166.

credit rating would be partially compensated through the WACC, leading to potentially adverse implications for end-users.

Other submissions on our draft decision for a BBB+ credit rating

- 6.387 We received other submissions on our draft decision. Chorus and Telstra Super, for example, submitted that BBB is more consistent with the systematic risk profile of FFLAS, and that an Ofcom assessment indicates this.⁷⁷⁰
- 6.388 We note these submissions but we are not persuaded that systematic risk is a determining factor behind credit rating nor that the Ofcom assessment demonstrates this conclusion. We also maintain our point at paragraph 6.385.
- 6.389 Several submitters disagreed with the draft decision for a BBB+ credit rating on the basis that it is inconsistent with our approach to Crown Financing.⁷⁷¹ We note, however, that considerations around the avoided cost of Crown Financing differ and consistency may not be required.
- 6.390 Oxera for Chorus submitted a credit rating of BBB, reflecting the median of Oxera's comparator sample.⁷⁷² Paradice Investment Management also submitted that BBB+ was too high.⁷⁷³
- 6.391 In response to these submissions, we checked that our comparator set is not inconsistent with our judgment of the appropriate credit rating at paragraphs 6.382 to 6.382.3. We note that the medians of our comparator set also support BBB and BBB+ credit ratings. This is also true of the means and most frequent credit ratings (modes), as demonstrated below in Table 6.6.

⁷⁷⁰ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 55; Telstra Super "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 2.

⁷⁷¹ Sapere "The cost of capital input methodologies for fibre" (report prepared for Chorus, 30 January 2020), paragraph 100; Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 210; Black Crane Capital "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 3; L1 Capital "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 17.

⁷⁷² Oxera "Compensation for systematic risks report - Prepared for Chorus" (15 July 2019, updated 31 July 2019), page 6.

⁷⁷³ Paradice Investment Management "Fibre Emerging Views submission" (10 July 2019), page 2.

Table 6.6 Credit rating averages of rated comparator firms in our sample⁷⁷⁴

	Mode	Median	Mean
All rated comparators	BBB+	BBB	BBB/BBB-
Investment grade rated comparators only	BBB+	BBB+	BBB+

Our decision is to specify a BBB credit rating

- 6.392 We have considered submissions on our draft decision and our final decision is to specify the S&P long-term credit rating of BBB for regulated providers.
- 6.393 Our view is that both BBB+ and BBB are options for benchmarking the allowed regulated service-wide debt premium for regulated providers of FFLAS, for the following reasons.
- 6.393.1 During 2013-2014 during a period of financial distress, Chorus' BBB S&P long-term credit rating, at one notch above the minimum investment grade, was a sufficient investment grade buffer.
- 6.393.2 Neither BBB+ nor BBB is inconsistent with the comparator sample, a view we share with CEPA⁷⁷⁵ and Dr Lally⁷⁷⁶ (while we note this relationship, we also note our decision to not tie the notional credit rating too tightly to the comparator set, that is we decouple to avoid a credit rating that could fall below investment grade).
- 6.394 The choice between these two options, BBB+ and BBB, is finely balanced. Based on the facts before us, we consider that BBB, at one notch above the minimum investment grade, is a sufficient and appropriate signal on the prudent long-term level of exposure to credit default risk for regulated providers of FFLAS. We have also had regard to submissions reporting that Crown Fibre Holdings specified a minimum S&P long-term credit rating of BBB- for Chorus over the pre-implementation period and that Chorus has maintained a credit rating one notch above this at BBB, as discussed at paragraph 6.378.3.

⁷⁷⁴ The mean for all rated comparators is between BBB and BBB- but closer to BBB (with a numerical value of 6.32, where 6 is BBB and 7 is BBB-).

⁷⁷⁵ We note it is also consistent with the advice from CEPA which has advised BBB/BBB+ is appropriate for FFLAS providers and consistent with their own comparator set, Cambridge Economic Policy Associates "Cost of capital for regulated fibre telecommunication services in New Zealand: Response to submissions on the Input Methodologies Draft Decision" (July 2020), page 36.

⁷⁷⁶ We note that BBB would not be inconsistent with Dr Lally's advice. Dr Lally found that: "The Commission's use of option (d) is defensible if its choice of credit rating is not inconsistent with the comparator evidence"; Martin Lally "Further issues concerning the cost of capital for fibre input methodologies" (report prepared for the Commerce Commission, May 2020), pages 14-16.

- 6.395 Having considered the evidence in the round, our judgment has shifted to BBB as the service-wide notional target credit rating that best gives effect to the s 166(2) purposes.
- 6.396 While we are cautious linking the notional benchmark rating to a single provider as we explained at paragraph 6.351 and recognise that BBB is one notch above the above the minimum investment grade, we consider that BBB provides a sufficient margin above non-investment grade ratings and therefore sends the appropriate signal as a baseline approach. We have therefore determined a credit rating of BBB for providers of regulated FFLAS.

Cost of equity

- 6.397 The purpose of this section is to explain our decisions regarding the cost of equity including each of the parameters that make up the cost of equity.
- 6.398 In this section, we discuss:
- 6.398.1 the model we will use to estimate the cost of equity; and
 - 6.398.2 the values of the parameters we will use to estimate the cost of equity.

We will use the simplified Brennan-Lally CAPM to estimate the cost of equity

- 6.399 The cost of equity requires a significant amount of judgement and is generally considered more difficult to estimate than the cost of debt. The difficulty in estimating the cost of equity is due to the need to estimate the risk associated with investing in the sharemarket generally and then in a particular company specifically. While an investor can look backwards and identify the return on equity that was achieved, that same investor cannot look forward and with confidence assume the same returns that were achieved in the past will continue into the future. There are financial models and data estimation techniques that can help with the estimation process, but these are only as good as the inputs and assumptions that are used.
- 6.400 Most analysts and regulators use a financial model to arrive at an estimate of the cost of equity, and this model is generally the Capital Asset Pricing Model (the CAPM).
- 6.401 The CAPM was developed by Sharpe, Lintner and Mossin during the early 1960s. Since then a number of variations to the CAPM have been developed which incorporate different taxation considerations, including the Officer CAPM for the Australian taxation system and the Brennan-Lally CAPM for the New Zealand taxation system. A different variant, the International CAPM, takes international investors into account.

- 6.402 The Brennan-Lally CAPM (Lally's adaptation for New Zealand circumstances of a CAPM model elaborated by Brennan) was developed to reflect New Zealand's taxation system. Specifically, it recognises the presence of imputation credits and the general absence of taxes on capital gains. There is an extended form of the Brennan-Lally CAPM and a simplified version, but it is the Simplified Brennan-Lally CAPM (SBL-CAPM) that has become the dominant form of the CAPM used in New Zealand.
- 6.403 In New Zealand, the term SBL-CAPM has become largely synonymous with the generic term CAPM, and the terms are frequently used interchangeably. It is reasonably rare to find a CAPM-based estimate of the cost of equity in New Zealand that does not rely on the SBL-CAPM.
- 6.404 In the New Zealand context, we note that we have used the SBL-CAPM in prior cost of capital decisions.⁷⁷⁷ We will use the SBL-CAPM rather than other versions of the CAPM for the following reasons.
- 6.404.1 The assumptions of the SBL-CAPM are consistent with the New Zealand tax system, whereas the assumptions of other CAPMs are not. For example, the classical Sharpe-Lintner CAPM does not adjust for the effect of imputation credits and assumes the same rate of taxation on dividends as on capital gains. This is not representative of the New Zealand system of taxation. Professor Franks noted that the UK used a similar model to the SBL-CAPM when it had a tax imputation regime that was similar to New Zealand's.⁷⁷⁸
- 6.404.2 The SBL-CAPM is very widely used and accepted in New Zealand, including by companies, investment analysts, practitioners, independent takeover appraisal reports, and advisers, and is the preferred method for estimating the cost of capital in New Zealand.
- 6.405 We consider that the SBL-CAPM is the best model for estimating the cost of equity in New Zealand. Like other models it has its imperfections, including the leverage anomaly (which is a problem with the SBL-CAPM whereby the cost of capital increases as leverage increases). However, the simplified Brennan-Lally CAPM enjoys such widespread support, and competing models limited support, that we believe there is currently no credible alternative. We did not receive any submissions on our use of the SBL-CAPM raising concerns with our use of this model.

⁷⁷⁷ Most recently for the regulation of electricity and gas distribution and transmission under Part 4 and for the regulation of UCLL and UBA under the Telecommunications Act 2001.

⁷⁷⁸ Franks, J., Lally M., & Myers S "Recommendations to the New Zealand Commerce Commission on an Appropriate Cost of Capital Methodology" (2008), page 11.

6.406 Our decision is to estimate the cost of equity using the simplified Brennan-Lally CAPM.

Parameters used to estimate the cost of equity under the simplified Brennan-Lally CAPM

6.407 Under the SBL- CAPM:

$$\text{cost of equity} = \text{risk-free rate} \times (1 - \text{investor tax rate}) + \text{equity beta} \times \text{TAMRP}$$

6.408 The SBL-CAPM therefore requires us to estimate the following parameters:

- 6.408.1 the risk-free rate, which is the rate of return on an investment with zero risk;
- 6.408.2 the investor tax rate;
- 6.408.3 equity beta, which is a measure of the risk of investing in a security relative to investing in the market as a whole;⁷⁷⁹ and
- 6.408.4 the Tax Adjusted Market Risk Premium (TAMRP), which is the additional expected return over and above the risk-free rate which is required to compensate investors for investing in the market as a whole.

6.409 This section explains our approach to estimating each of these parameters. We also explain our findings in respect of equity financing costs, which we would, if justified, include as an allowance rather than a specific cost of capital adjustment.

Risk-free rate

6.410 The IM applies the same approach to estimate the risk-free rate for both the cost of equity and the cost of debt and results in the calculation of the same number for these two purposes. We have assumed a term for the risk-free rate which matches the regulatory period. This ensures that the overall cost of capital is estimated using a consistent approach and that the term of the risk-free rate matches the regulatory period to which it will be applied. For the detailed reasons for this decision see the discussion that begins at paragraph 6.81 which considers the risk-free rate in relation to the cost of debt.

Equity beta

Summary of decision

6.411 The IM specifies an equity beta for all regulated providers of 0.7. This estimate is the result of applying an asset beta of 0.50 and a notional leverage of 29%.

⁷⁷⁹ Under the simplified beta leveraging formula for the SBL-CAPM (ie, assuming a debt beta of zero), equity beta = asset beta / (1 - leverage).

- 6.412 The equity beta is slightly lower than it was in the draft decision (0.7 compared to 0.71). The lower equity beta is the net effect of a higher asset beta (0.50 compared to 0.49) and a lower notional leverage (29% compared to 31%) and is consistent with our comparator sample.

General explanation of the equity beta

- 6.413 The equity beta measures a security's sensitivity to market risk (ie, equity beta is a measure of exposure to systematic risk). Systematic risk measures the extent to which the returns on a company fluctuate relative to the equity returns in the stock market as a whole. For example,
- 6.413.1 if an investment had no systematic risk (ie, it showed no correlation with returns on the market), its equity beta would be zero;
 - 6.413.2 if an investment in the equity of a company is of average risk, the equity beta will be one. This means that the premium over the risk-free rate that equity investors expect will be the same as the average for the overall market (the TAMRP).
- 6.414 As equity betas are not directly observable, they need to be estimated. While betas are estimated empirically this requires a level of judgement. As the cost of capital is intended to be forward-looking, forward-looking equity betas are required. We, like other analysts, assume that historic beta estimates are indicative of future betas. Historic estimates of average betas are used because beta is expected to be relatively stable over time.
- 6.415 For firms with traded stocks, the equity beta for the firm can be estimated directly from the historical returns on those stocks, relative to the market's return. As the equity beta is influenced by a firm's leverage, it is generally converted into an asset beta for the purpose of estimating an average asset beta for a sample of firms.

Rationale for decision

- 6.416 Our decision is to estimate the equity beta by applying a six-step method for calculating the equity beta. The six-step method involves the following.
- 6.416.1 **Step 1:** identifying the sample of firms.
 - 6.416.2 **Step 2:** estimating the equity beta for each firm in the sample.
 - 6.416.3 **Step 3:** de-levering each equity beta to get an asset beta.
 - 6.416.4 **Step 4:** calculating the average asset beta for the sample.
 - 6.416.5 **Step 5:** applying any adjustments for regulatory differences or systematic risk to the average asset beta for the sample.

6.416.6 Step 6: re-levering the average asset beta for the sample to an equity beta estimate using the Commission's assumed notional leverage.

Step 1: identifying the sample of firms

- 6.417 The already difficult task of identifying an equity beta is made even more difficult due to the lack of comparators that provide only FFLAS. Telecommunications companies generally provide a range of services, and of those that provide network services, it is difficult to find companies that can be regarded as 'pure play' FFLAS providers.
- 6.418 Our decision is to use the following two sources of information as a starting point when identifying firms that are possible comparators to a regulated provider.
- 6.418.1 the Industry Classification Benchmarks reported by Bloomberg for the Bloomberg Industry Classification Standard (BICS) Level 3 Telecom Carriers / Telecom Resellers; and
 - 6.418.2 Professor Damodaran's sample of telecommunications companies from the Telecom Wireless and Telecom Services subgroups.⁷⁸⁰
- 6.419 We consider, for the reasons stated below, that these two sources provide a sample of firms to which filters can be applied so that the resulting sample of firms has characteristics that are relevant for determining the equity beta for regulated providers.
- 6.420 We agree with using the criteria and filters CEPA has applied to the data and consider the resulting sample provides credible and relevant comparators for purposes of calculating the equity beta.⁷⁸¹
- 6.420.1 CEPA has taken the Bloomberg and Damodaran data and then excluded companies that are not from New Zealand, the UK, North America, continental Europe, Japan, Singapore and South Korea. They also excluded companies if they are non-network owners, have market capitalisation below US\$100 million, have less than two years trading history, have more than 50% of revenue from sources outside their main country of operation, derive a large share of their revenue from outside the telecommunications sector, have large bid-ask spreads, or have very high

⁷⁸⁰ The Damodaran data is available from the Damodaran website (<http://pages.stern.nyu.edu/~adamodar/>).

⁷⁸¹ As explained in 6.355 the same set of comparators is also relevant to our assessment of the credit rating and gearing.

gearing.⁷⁸² CEPA added to this sample seven telecommunications tower owners and two satellite operators.⁷⁸³

6.420.2 CEPA also excluded companies that do not have both equity beta and leverage data.⁷⁸⁴

- 6.421 Compared to our draft decision, we have added five companies that were identified from the sample compiled by Aswath Damodaran, Professor of Finance at the Stern School of Business at New York University. In the draft decision, we used CEPA's recommended sample and did not use the Damodaran sample.
- 6.422 Chorus and its consultant Sapere submitted that we need to address the absence of pure-play FFLAS provider comparators by taking a larger set of companies and avoiding making judgements about which companies to include.⁷⁸⁵
- 6.423 Sapere uses Professor Damodaran's sample of telecommunications companies from the Telecom Wireless and Telecom Services subgroups. Sapere excludes companies in the Telecom Equipment subcategory and only includes companies from developed countries.⁷⁸⁶
- 6.424 In comparison, CEPA had based its advice to us on the Bloomberg Industry Classification System list of telecommunications companies. CEPA then excludes companies based on the filtering process described above at paragraph 6.420.
- 6.425 We disagree with Chorus and Sapere that it is not appropriate to apply filters to the initial sample. It is appropriate to remove companies that have substantially different characteristics to the regulated providers or where there are issues with the reliability of the data. We also agree with Spark:

⁷⁸² See CEPA "Cost of capital for regulated fibre telecommunication services in New Zealand: Asset beta, leverage, and credit rating – Response to submissions" (October 2019), page 7, for a full description of CEPA's process for compiling the comparator sample set.

⁷⁸³ However, only five of the nine tower and satellite companies had asset beta and leverage data for the periods 2009-14 and 2014-19. All nine tower and satellite companies had asset beta and leverage data for the period 2017-19

⁷⁸⁴ Specifically, CEPA included firms that have an estimate of beta available for at least one of the periods 2009-14 and 2014-19 as well as an estimate of gearing available for at least one of the periods 2009-14 and 2014-19. In addition, prior to the draft decision, in response to submissions, CEPA added companies from Japan, Singapore and South Korea to the sample, and CEPA excluded companies with very high gearing or large bid-ask spreads.

⁷⁸⁵ Chorus "Submission on fibre input methodologies draft decision" (30 January 2020), paragraph 136

⁷⁸⁶ Sapere "The cost of capital input methodologies for fibre, prepared for Chorus" (27 January 2020), paragraph 125.

As Professor Partington and Satchell note in their 2019 report to us, “Using comparator sets to estimate beta suffers from the problem that there are frequently few suitable candidates to put in the set. Adding a large number of unsuitable companies to increase sample size does not improve matters, but actually makes them worse.”⁷⁸⁷

- 6.426 When CEPA takes the Damodaran data and applies the same filters as it applies to the Bloomberg sample, there are seven companies that are not in the Bloomberg sample.
- 6.427 Three companies were not included in the Bloomberg sample because they were classified as renewable energy equipment providers or data centres, rather than telecommunications companies. The three companies are:
 - 6.427.1 TeraGo from Canada, which provides cloud, colocation and connectivity services;
 - 6.427.2 Telus from Canada, which provides voice, data, internet and wireless services; and
 - 6.427.3 United Internet from Germany, which owns Germany’s second largest fibre network.
- 6.428 We consider that these companies are reasonable comparators for regulated providers and should be included in the sample. Including these companies in the sample does not change the asset beta.
- 6.429 Four of the additional seven companies CEPA identified using the Damodaran data are based in countries excluded by CEPA in its filtering process. The four companies are from the Czech Republic, Poland and Turkey. In our draft decision we only included companies from New Zealand, the UK, US, Western Europe, Japan, Singapore and South Korea.⁷⁸⁸
- 6.430 CEPA advised that they did not consider it necessary to broaden the geographic spread of the sample to the extent of adding firms from eastern Europe.⁷⁸⁹
- 6.431 However, we do not consider that there is any reason to exclude firms just because they are from eastern Europe. We have decided to include the following two

⁷⁸⁷ Spark NZ “Fibre input Methodologies: draft determination” (30 January 2020), paragraph 41; referencing Graham Partington and Stephen Satchell “Report to Fonterra: Discussion of the Asset Beta for use in Milk Pricing” (14 March 2019), page 11.

⁷⁸⁸ We note the Damodaran sample does not include companies from Singapore and South Korea, whereas CEPA’s Bloomberg sample does include these companies.

⁷⁸⁹ CEPA “Cost of capital for regulated fibre telecommunication services in New Zealand: Asset beta, leverage, and credit rating – Response to submissions” (October 2019), page 15.

companies from the Czech Republic and Poland because we consider they are reasonable comparators for regulated providers:

6.431.1 Netia from Poland, which provides voice, data and internet services; and

6.431.2 O2 from the Czech Republic, which provides mobile, voice and data services.

6.432 We have decided to not include the two companies from Turkey in the comparator sample because we are concerned that Turkey has a market risk premium (9.6%) that is high compared to New Zealand.⁷⁹⁰ Including companies from countries with a relatively high market risk premium may affect the comparability of the asset beta estimates of these companies.

6.433 The average asset beta is sensitive to the inclusion of the companies from Turkey. Had we included the two companies from Turkey, the asset beta would be 0.53 instead of 0.50.

6.434 Submissions commented that we should not include mobile tower companies or satellite operators in the comparator sample.⁷⁹¹ The general concern was that mobile tower companies are real estate businesses that typically do not own any telecommunications network equipment – they simply lease the space on buildings; while satellite operators generate most of their revenue from satellite television services rather than regulated FFLAS.

6.435 When first considering the sample, CEPA could not find a listed 'pure play' provider of wholesale fibre services to include in the sample (other than Chorus). The wholesale service providers they did find were nine companies providing tower and satellite services for mobile network operators and broadcasters.

6.436 CEPA reported on the wholesale companies (including Chorus) separately, and they are seen to have average asset betas that are lower than the asset betas of vertically

⁷⁹⁰ Source: Fernandez, Pablo, Mar Martinez & Isabel Acin (2019). "Market Risk Premium and Risk-Free Rate used for 69 countries in 2019: a survey", IESE business school. In comparison to Turkey, New Zealand has a market risk premium of 5.9%, Czech Republic has a market risk premium of 6.3% and Poland has a market risk premium of 6.6%.

⁷⁹¹ TelstraSuper "Fibre Emerging Views submission" (16 July 2019), Castalia "Rate of return for Information Disclosure Profitability Monitoring of Local Fibre Companies - Report to Ultrafast fibre and Enable networks" (August 2019), Ubique Asset Management "Fibre Emerging Views submission" (16 July 2019), Black Crane Capital "Submission on Fibre Input Methodologies: Emerging Views Paper" (15 July 2019), and Investors Mutual "Fibre Emerging Views submission" (16 July 2019), Northpower Fibre and Northpower LFC2 "Submission on Draft Fibre Input Methodologies" (30 January 2020) paragraph 11, Cooper Investors (30 January 2020) page 1, Enable Network and Ultrafast Fibre "Submission on NZCC Fibre Input Methodologies – Draft Decision" (30 January 2020) paragraph 10.4

integrated service providers by between 0.13 and 0.03 depending on the time period, and whether daily, weekly or four-weekly data are used.⁷⁹²

- 6.437 CEPA's view is that sharemarket values of mobile tower companies and satellite operators are influenced by the same forces that influence the sharemarket values of regulated providers, namely demand for data and high bandwidth applications. Even though mobile tower companies and satellite operators are not providing regulated FFLAS, they are operating in a similar market as the regulated providers because of the rapidly growing demand for wireless services.⁷⁹³
- 6.438 We agree with CEPA that mobile tower companies and satellite operators are relevant comparators as they are operating in a similar market as the regulated providers.
- 6.439 However, we also acknowledge the submissions indicating that tower companies and satellite operators may have less risk than FFLAS. The weight that should apply to mobile tower companies and satellite operators is considered further in paragraphs 6.443 to 6.460 below.
- 6.440 Had we excluded tower and satellite companies the asset beta would increase from 0.50 to 0.51.

Step 2: estimating the equity beta for each firm in the sample

- 6.441 This step involves using statistical analysis to estimate the equity beta for each company. It is not contentious, and we did not receive submissions on this matter.

Step 3: de-levering each equity beta to get an asset beta

- 6.442 This step involves converting the equity beta for each company to an asset beta using the company's leverage. It is not contentious, and we did not receive submissions on this matter.

Step 4: calculate the average asset beta for the sample

- 6.443 Our decision is to calculate the average asset beta for the sample by:

- 6.443.1 weighting all asset betas of the companies in the sample equally;
- 6.443.2 using five-yearly estimates for the periods 2009 to 2014 and 2014 to 2019;
- 6.443.3 using weekly and four-weekly estimates;

⁷⁹² CEPA "Cost of capital for regulated fibre telecommunication services in New Zealand: Asset beta, leverage, and credit rating – Response to submissions" (October 2019), Table 7.4.

⁷⁹³ CEPA "Cost of capital for regulated fibre telecommunication services in New Zealand: Asset beta, leverage, and credit rating – Response to submissions" (October 2019), page 11.

6.443.4 using data from each reference day available; and

6.443.5 taking the mean of the resulting estimates.

6.444 We have also had regard to asset betas calculated using daily data and the period 2017-19 by confirming that the average asset beta from the sample is consistent with this alternative data.

6.445 This is the same method as in the draft decision.

6.446 CEPA proposed that we adopt the average asset betas for the wholesale-only companies and vertically integrated companies.⁷⁹⁴ CEPA proposed we:

6.446.1 use the four-weekly and weekly estimates from the two most recent five-year periods (2009-14 and 2014-19);

6.446.2 for wholesale-only companies, take the highest (0.45) and lowest (0.38) estimates and calculate the mid-point (0.41);

6.446.3 for vertically integrated companies, take the highest (0.52) and lowest (0.47) estimates and calculate the mid-point (0.49); and

6.446.4 Combine the two mid-point estimates to get a range of 0.41 to 0.49.⁷⁹⁵

6.447 CEPA explained that it chose its method because it:

6.447.1 accepts that regulated providers are exposed to more demand risk than the wholesale group; but

6.447.2 thinks the regulated providers are exposed to less demand risk than the integrated service provider group because:

6.447.2.1 that group incorporates the demand risk from retail activities such as streaming and business information and communications technology (**ICT**) services; but

⁷⁹⁴ CEPA “Cost of capital for regulated fibre telecommunication services in New Zealand: Response to submissions on the Input Methodologies Draft Decision” (6 July 2020), page 8.

⁷⁹⁵ We include more companies than CEPA recommended. The comparable range using our sample and CEPA’s method is 0.41 to 0.51.

- 6.447.2.2 the maximum revenues required to be specified for regulated providers subject to PQ⁷⁹⁶ will limit the volatility in returns for regulated providers.
- 6.448 CEPA considered an equal weighting of all companies in the sample would result in an asset beta too close to the value for the integrated service provider group.
- 6.449 Spark submitted that we should place more weight on wholesale providers:⁷⁹⁷
- It's unclear why FFLAS providers with arrangements that include Crown funding and support, an enduring RAB and guaranteed FCM funding (subject to minor efficiency incentives) are seen as being exposed to more risk than a wholesale provider in a competitive market with long term contracts.
- 6.450 Oxera submitted that all companies should be given equal weight.⁷⁹⁸
- 6.451 Vodafone submitted that Covid-19 provided a natural experiment that can be used to inform the choice of asset beta for regulated providers. Vodafone provided a chart showing the change in Chorus' share price since the start of 2020 compared to the change in the average share price of the comparator sample that we have used to calculate the asset beta. According to Vodafone the chart shows "the comparator group has been hit hard by the pandemic, while Chorus has been largely unaffected."⁷⁹⁹ Vodafone submitted that we should use this evidence to reduce the weight we have placed on the integrated companies in the comparator sample.
- 6.452 Chorus rejected Vodafone's assessment by arguing that "it does not provide information about the relative asset betas of the comparator set and Chorus" and that beta refers to equity returns not share prices.⁸⁰⁰
- 6.453 The wholesale group includes nine tower and satellite companies and Chorus. However, only five of the nine tower and satellite companies have both leverage and beta data available, and therefore only five are included in our estimation process.
- 6.454 The five tower and satellite companies in the comparator sample have an average asset beta of 0.40 whereas the other companies in the comparator sample (excluding Chorus) have an average asset beta of 0.51.

⁷⁹⁶ Under s 195(1) of the Act, we must, in the PQ paths for each regulatory period that starts before the reset date, specify the maximum revenues that may be recovered by a regulated provider.

⁷⁹⁷ Spark NZ "Fibre input Methodologies: draft determination" (30 January 2020), paragraph 61.

⁷⁹⁸ Oxera "Compensation for systematic risks report - Prepared for Chorus" (15 July 2019, updated 31 July 2019),

⁷⁹⁹ Vodafone "Submission on fibre input methodologies further consultation" (13 August 2020), page 6.

⁸⁰⁰ Chorus "Cross submission on the Commerce Commission's fibre input methodologies – further consultation draft reasons paper" (3 September 2020), page 7.

- 6.455 We consider that tower and satellite companies have characteristics, such as the nature of the long-term contracts they typically employ, that means they are likely to be exposed to less systematic risk than regulated providers.
- 6.456 We also note the submission by Vodafone that indicates Chorus' share price was less affected by the Covid-19 pandemic than was the average of the other companies in the comparator sample, which suggests that there may be similarities in investor perceptions of tower and satellite companies and regulated providers.
- 6.457 We accept that companies with retail operations may be exposed to more systematic risk than the regulated providers. There is regulatory precedent for applying a lower asset beta for access services than retail services. Ofcom, following advice from PwC in 2005, has applied an asset beta to BT's copper access network that is lower than BT's asset beta.⁸⁰¹ The case for a lower asset beta for BT's copper access network was based on the following.
- 6.457.1 A qualitative view that the call/data volume risk faced by retailers is higher than for an access provider. PwC states:⁸⁰²
- it seems reasonable to anticipate that call volumes [ie, usage] will fluctuate more in response to changing economic circumstances, because businesses and individuals are more likely to react to changes in business activity and incomes by altering their immediate pattern of consumption of telecommunications services than by changing their consumption of access.
- 6.457.2 Previous studies showing lower income elasticities of demand for access compared to demand for various call types.
- 6.457.3 A quantitative analysis of BT's beta over time, which showed lower betas were correlated with times when access was a greater share of BT's business.
- 6.457.4 However, PwC acknowledged that there were methodological problems with some of these studies, and that some studies were dated.
- 6.458 In considering the weights to be applied to individual companies included in the comparator sample, our starting point is to give all companies equal weight. We consider we should deviate from this approach only if the evidence indicates that a deviation is warranted.
- 6.459 We note that CEPA's recommended method gives equal weight to the average of the wholesale companies (*ie* tower and satellite companies and Chorus) and vertically integrated companies and that CEPA proposed this method because it wanted to
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offset the effect that retail operations would otherwise have on the average asset beta from the sample. However, the evidence that retailers have a higher asset beta than regulated FFLAS is not strong.

- 6.460 Overall, we consider that this decision is a difficult one that requires judgement. We have considered applying more weight to tower and satellite companies than to the other companies in the comparator sample. However, on balance we have concluded that we will give each company in the sample an equal weight for the purpose of calculating the average asset beta. We do not consider the evidence before us is strong enough to justify applying different weightings to the comparators.
- 6.461 Castalia submitted that more weight should be placed on data from the past five years because rapid technological change may be influencing the asset beta calculations.⁸⁰³ For a similar reason, Oxera submitted that CEPA should have also used the 2017-19 period.⁸⁰⁴ CEPA considered there may be merit in this argument but noted it would result in a similar range of asset betas.⁸⁰⁵ We note that the estimates of asset betas between the two five-year periods of 2009 to 2014 and 2014 to 2019 show no significant difference when considered against the standard error. We also note that the estimates of asset betas for the 2017-19 period are lower on average than the estimates for the two five-year periods, which indicates that technological change does not appear to have increased the estimates of asset betas.⁸⁰⁶
- 6.462 We agree with Professor Damodaran's suggestion that a trade-off exists when choosing a time period for beta estimation:⁸⁰⁷

By going back further in time, we get the advantage of having more observations in the regression, but this could be offset by the fact that the firm itself might have changed its characteristics, in terms of business mix and leverage, over that period. Our objective is not to estimate the best beta we can over the last period but to obtain the best beta we can for the future.

- 6.463 There is also a trade-off in choosing the frequency of the beta estimates. The options are to use either daily, weekly or four-weekly data.

⁸⁰³ Castalia "Rate of return for Information Disclosure Profitability Monitoring of Local Fibre Companies - Report to Ultrafast fibre and Enable networks" (August 2019), pages 2 to 3.

⁸⁰⁴ Oxera "Compensation for systematic risks report - Prepared for Chorus" (15 July 2019, updated 31 July 2019), page 5.

⁸⁰⁵ CEPA "Cost of capital for regulated fibre telecommunication services in New Zealand: Asset beta, leverage, and credit rating – Response to submissions" (October 2019), page 38.

⁸⁰⁶ See Table 6.7 at paragraph 6.467.

⁸⁰⁷ Estimating Risk Parameters, Aswath Damodaran. Available at: (<http://people.stern.nyu.edu/adamodar/pdfs/papers/beta.pdf>).

- 6.463.1 Daily asset beta estimates can be distorted by low liquidity stocks. To calculate an accurate asset beta estimate, it is important to measure contemporaneous changes in the individual firm's share price and the relevant market index. The shorter the estimation interval used (eg daily), the more difficult it is to capture a contemporaneous link, particularly where shares are traded infrequently.
- 6.463.2 Weekly and monthly asset beta estimates, on the other hand, lead to fewer observations being available when undertaking the regression analysis. This can affect the statistical significance of the results.
- 6.464 In reaching our decision to give primary weight to weekly and four-weekly betas, we note the following.
- 6.464.1 Our approach of averaging weekly and four-weekly betas across all possible reference days significantly reduces any potential concerns about a lack of observations for weekly and monthly estimates.
- 6.464.2 Although international evidence based on regulatory precedent and academic papers is ambiguous, a study of evidence from Australia, Germany and the UK concluded that "...longer frequency betas have superior characteristics for regulatory purposes in these countries" and that its findings "...imply that low frequency beta estimates should always be preferred to high frequency beta estimates".⁸⁰⁸
- 6.464.3 CEPA used daily estimates as a check rather than for their central calculation because daily estimates can be biased as a result of companies not trading each day whereas the market does.
- 6.465 We note that our decision is broadly consistent with the following.
- 6.465.1 Our approach used for the IMs relating to the supply of electricity lines services, gas pipeline services, and specified airport services, determined under Part 4, where we use weekly and four-weekly asset beta estimates averaged across each possible reference day of the two most recent five-year periods. We also had regard to earlier periods and daily estimates.⁸⁰⁹
- 6.465.2 Our approach used as part of setting the prices for Chorus' UCCL and UBA service using the FPP, where we used data from a combination of the two most recent five-year periods, placed greatest weight on monthly

⁸⁰⁸ Alan Gregory, Shan Hua and Rajesh Tharyan "In search of beta" (April 2015).

⁸⁰⁹ Commerce Commission "Input methodologies review decisions: Topic Paper 4: Cost of capital issues" (December 2016), paragraph 268.

observations and also considered rolling averages over the last ten years as additional evidence.⁸¹⁰

- 6.466 We have calculated a matrix of asset beta estimates using four-weekly, weekly and daily data across the periods 2009-14, 2014-19 and 2017-19.
- 6.467 The estimates of asset betas are provided in Table 6.7 for the sample of comparators.

Table 6.7 Estimates of asset betas

Year	Frequency	Asset beta	Standard error ⁸¹¹
2009 – 2014 (48 firms)	Daily	0.50	0.26
	Weekly	0.51	0.26
	4-weekly	0.50	0.32
2014 – 2019 (56 firms)	Daily	0.51	0.18
	Weekly	0.53	0.17
	4-weekly	0.46	0.10
2017 – 2019 (68 firms)	Daily	0.46	0.17
	Weekly	0.49	0.17
	4-weekly	0.44	0.16

- 6.468 The average estimates for the different time periods using our method are provided in Table 6.8 below.

Table 6.8 Average estimates for different time periods

Time period	Asset beta
Average 2009-14	0.51
Average 2014-19	0.49

⁸¹⁰ Commerce Commission “Cost of capital for the UCLL and UBA pricing reviews: Final Decision” (December 2015), paragraph 153.

⁸¹¹ This is the average standard error of the beta estimates for each individual firm in the comparator set rather than the standard error of the asset beta estimate overall.

Average for both 5-year periods	0.50
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6.469 The resulting asset beta estimates of 0.50 is:

- 6.469.1 higher than the estimate from the 2017-19 period using the weekly and four-weekly data, of 0.46; and
- 6.469.2 lower than the estimate from the two most recent five-year periods using daily data, of 0.51.

Step 5: applying any adjustments for regulatory differences or systematic risk to the average asset beta for the sample

- 6.470 Our decision is to not apply any adjustments for regulatory differences or systematic risk differences. We have decided to apply the average of our comparator sample with an asset beta for regulated providers of 0.50. This is the same position as in the draft decision.
- 6.471 Submissions indicated we should vary the average beta from the comparator sample based on alternative methods of estimating the asset beta, market analyst reports, sample bias, operating leverage and other qualitative arguments.

Alternative fibre beta estimates

- 6.472 A difficulty with estimating a FFLAS beta is the absence of pure-play comparators. Sapere, consultant for Chorus, proposed two methods, alternate to the mean sample method, to derive a fibre estimate for Chorus.⁸¹²
- 6.473 In the first method, Sapere proposed we derive Chorus' fibre asset beta by decomposing Chorus' group asset beta into three segments: fibre, copper and other. Sapere suggests using Chorus' group asset beta (0.50) from a survey of analysts in 2019 and the copper asset beta (0.43) from our 2015 decision on UCLL and UBA. For the 'other' beta Sapere suggests using the group asset beta. The fibre asset beta is derived as the residual from decomposing the Chorus group beta using revenue allocations from 2018 and 2019. This process gives a fibre asset beta of 0.61.
- 6.474 CEPA reviewed Sapere's analysis and noted it was based on a mix of asset beta estimates and revenue data from different time periods and sources.
- 6.475 To illustrate the sensitivity of the analysis to data from different time periods, CEPA notes that if the Chorus group asset beta of 0.46 from the 20014-19 comparator sample is substituted into Sapere's analysis, instead of using 0.50 as Sapere has

⁸¹² Sapere "The cost of capital input methodologies for fibre, prepared for Chorus" (27 January 2020), page 27.

done, the implied fibre asset beta is 0.50 rather than 0.61. CEPA does not consider this method is reliable.

- 6.476 In the second method, Sapere proposed we adapt the process that OfCom has applied to BT Group to derive a fibre asset beta for Chorus. Sapere used revenue data from Chorus to apply a weight of 20% to the Openreach asset beta of 0.57 and a weight of 80% to the Other UK Telecoms asset beta of 0.65 to get a fibre asset beta of 0.63.
- 6.477 CEPA disagrees with this analysis for two reasons. First, CEPA disagrees with the weightings and considers that Openreach is more comparable to FFLAS in New Zealand than is Other UK Telecoms.
 - 6.477.1 Although Other UK Telecoms includes FTTP, the FTTP market in the UK is more immature than the market in New Zealand. CEPA views Openreach as a better comparator because of its more mature FTTC services (with lesser systematic demand risk), which comprise approximately 60% of its broadband lines. In comparison, CEPA noted the take-up of UFB in New Zealand was 55% as at 30 September 2019.⁸¹³
 - 6.477.2 CEPA also notes that operating leverage was a factor for Ofcom applying a higher asset beta to Other UK Telecoms (BT's FTTP rollout involves higher capital expenditure than BT's FTTC services). CEPA does not consider operating leverage is high now for FFLAS because the UFB rollout is largely complete.
- 6.478 Second, CEPA disagrees that Openreach's asset beta of 0.57 should be used to calculate FFLAS for New Zealand. OfCom chose an asset beta of 0.57 for Openreach because it is slightly above the 0.54 midpoint of BT Group (0.68) and listed UK network utility asset betas (0.39) and below the average asset beta of retail telecoms providers (0.63).
- 6.479 CEPA does not consider BT Group to be an any better comparator than other companies for being used as the 'anchor' for setting an asset beta for FFLAS. Nevertheless, CEPA notes that if BT Group is replaced with Chorus (0.46), and listed UK utilities is replaced with regulated energy networks in NZ (midpoint of 0.375), the resulting fibre asset beta derived using OfCom's method is 0.44 (including the 0.2 increment used by OfCom).

⁸¹³ Chorus has indicated that the UFB uptake within the completed footprint has increased to 60%; see Chorus, FY20 Full Year Result presentation (24 August 2020), page 9.

- 6.480 CEPA notes that to do this analysis properly requires updated and consistent data. However, CEPA does not view this analysis as being any more informative than using a comparator sample.
- 6.481 Overall, we agree with CEPA's analysis and conclude that the decomposition methods proposed by Sapere do not enable a more accurate estimate of the asset beta for regulated providers.

Market analyst reports

- 6.482 For the draft decision we sourced market analyst reports from early 2019 that relate to Chorus. Chorus submitted that we had double counted one of the reports and omitted a report from New Street Research. The following revised table provides the asset beta estimates from seven market analyst reports, which range from 0.5 to 0.7. We note the report from New Street Research was subsequently provided as a submission and therefore we consider it has less value as an independent cross-check than other market analyst reports.⁸¹⁴

Table 6.9 Market analyst reports that relate to Chorus from 2019

Entity	Date	Asset Beta Estimate
UBS	February, 2019	0.5
Deutsche Bank	February, 2019	0.54
Forsyth Barr	March, 2019	0.55
Macquarie	February, 2019	0.64
Credit Suisse (Jarden)	February, 2019	0.5
Woodward	February, 2019	0.5
New Street Research	February/March 2019	0.7

- 6.483 Black Crane Investment Management submitted that they have conducted a more recent survey of market analyst reports than we used in the draft reasons paper which results in an average asset beta of 0.57.⁸¹⁵
- 6.484 Chorus and Enable Networks and Ultrafast Fibre commented that an issue with market analyst estimates is that all except the Forsyth Barr estimate are estimates of the asset beta for Chorus rather than Chorus' FFLAS business.⁸¹⁶ However, we understand that the Woodward report also refers to Chorus' FFLAS business. We also note that there is generally no substantiation of the estimates provided.

⁸¹⁴ New Street Research "Submission on Fibre Input Methodologies (11 September 2020)

⁸¹⁵ Black Crane Investment Management "Submission on Fibre Input Methodologies: Draft Decision Paper" (27 January 2020), page 2.

⁸¹⁶ Chorus "Submission on Fibre input methodologies; Draft Decision" (30 January 2020), paragraph 202; Enable Network and Ultrafast Fibre "Cross Submission on NZCC Fibre Input Methodologies – Draft Decision" (17 February 2020), paragraph 2.6.

6.485 Chorus' asset beta from the comparator sample for the 2014-19 period is 0.46 (which is the average of 0.42 for weekly data and 0.50 for four-weekly data). This is lower than the estimates from market analyst reports.

6.486 [

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6.487 Oxera and Castalia submitted that Chorus' group asset beta was lower than the asset beta for regulated providers because of Chorus' copper access business.⁸¹⁸ However, as discussed below at paragraphs 6.489 to 6.4916.467 below and, it is not clear to us that Chorus' copper access business has a lower asset beta than its business supplying regulated FFLAS.

6.488 Overall, we consider that the market analyst reports are not inconsistent with an asset beta of 0.5, even though we note that 0.5 is the lower bound of the estimates provided.

Sample bias

6.489 Various submissions were concerned that taking the average from the comparator sample would not account for the potential sample bias associated with the influence of copper services in the sample and different regulatory frameworks.

6.490 Oxera and Castalia submitted that the asset beta for a stand-alone regulated provider would be higher than the mid-point of the range used by CEPA because of the influence of the lower-risk copper services of many companies in the sample.⁸¹⁹

6.491 CEPA was not convinced by this argument, which relies on regulated FFLAS having a greater income elasticity of demand compared to copper services. CEPA has collected data on the current pricing of copper and fibre plans, which indicates that fibre plans are not systematically more expensive than copper plans. CEPA concludes that regulated FFLAS is unlikely to be viewed as a luxury good in comparison to copper. CEPA also noted evidence from Ofcom and the Netherlands Authority for Consumers and Markets indicating that demand for regulated FFLAS is likely to be

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⁸¹⁸ Oxera "Compensation for systematic risks report - Prepared for Chorus" (15 July 2019, updated 31 July 2019), page 2 and Castalia "Rate of return for Information Disclosure Profitability Monitoring of Local Fibre Companies - Report to Ultrafast fibre and Enable networks" (August 2019), pages 3 to 5.

⁸¹⁹ Oxera "Compensation for systematic risks report - Prepared for Chorus" (15 July 2019, updated 31 July 2019), pages 2 to 4 and Castalia "Rate of return for Information Disclosure Profitability Monitoring of Local Fibre Companies - Report to Ultrafast fibre and Enable networks" (August 2019), pages 2 to 5.

'sticky' because once an end-user has switched to regulated FFLAS, they are unlikely to switch back.⁸²⁰

- 6.492 Spark submitted that we should check the average beta estimate from the comparator sample with estimates for subsamples based on differing risk profiles and regulatory frameworks.⁸²¹
- 6.493 CEPA did a similar exercise as an input for our 2018 dairy price calculation and found that the betas for the subsamples were similar, which validated the use of the broader comparator set.
- 6.494 We have considered whether subsamples should be created based on fibre as a proportion of total revenue and regulatory system but decided not to undertake the analysis because the data is difficult to obtain, and we are concerned the analysis may not be robust.

Operating leverage

- 6.495 Oxera submitted that regulated providers should have a higher asset beta than the comparators because they have higher operating leverage (a higher ratio of fixed to variable costs).⁸²² CEPA considered this point may be relevant during the pre-implementation period (1 December 2011 until 31 December 2021); however, it is less relevant for the first regulatory period when the rollout will be largely complete, and uptake will be greater.⁸²³ CEPA also notes there is no evidence that the regulated providers' operating leverage is higher than the operating leverage of the comparator sample. We agree with CEPA that there is no evidence that the operating leverage of regulated providers differs from the average of the comparator sample, and therefore do not consider there are grounds for adjusting the asset beta on this basis. We consider the asset beta for the pre-implementation period in our second final reasons paper on the financial loss asset.
- 6.496 Oxera also submitted that the long asset life of the fibre network exposed regulated providers to uncertain future cashflows compared to the risk exposure of the comparator sample.⁸²⁴ CEPA indicated, and we agree, that Oxera had not provided evidence that investors in companies in the comparator sample do not also have

⁸²⁰ CEPA "Cost of capital for regulated fibre telecommunication services in New Zealand: Asset beta, leverage, and credit rating – Response to submissions" (October 2019), page 23.

⁸²¹ Spark "Fibre Input Methodologies: draft determination cross submission" (17 February 2020), pages 8-9

⁸²² Oxera "Compensation for systematic risks report - Prepared for Chorus" (15 July 2019, updated 31 July 2019), section 2B.

⁸²³ CEPA "Cost of capital for regulated fibre telecommunication services in New Zealand: Asset beta, leverage, and credit rating – Response to submissions" (October 2019), page 25 and 26.

⁸²⁴ Oxera "Compensation for systematic risks report - Prepared for Chorus" (15 July 2019, updated 31 July 2019), section 2C.

long-term profit expectations, with different levels of uncertainty attached to these expectations.⁸²⁵

Other qualitative arguments to vary the average beta from the comparator sample

- 6.497 Submitters sought either a higher or lower asset beta from the average of the comparator sample based on qualitative arguments.
- 6.498 Spark submitted that we should ensure the asset beta is aligned with the type of wash-up mechanism we intend to put in place, and ensure the asset beta is at the lower end of the benchmark range if the wash-up mechanism allocates risks predominantly to end-users.⁸²⁶ More generally, Spark noted Dr Lally's advice that revenue capped businesses with wash-up mechanisms should theoretically have lower asset betas than price-capped businesses.⁸²⁷ On the other hand, Atlas Infrastructure submitted that the asset beta is too low because of asymmetry.⁸²⁸ That is, the regulated providers have revenue limited by the revenue cap but are exposed to demand, roll-out, price and market structure risks.
- 6.499 CEPA noted that it was unable to identify a robust basis to estimate any additional risk that may exist for the LFCs due to the different regulatory arrangements.⁸²⁹ WIK Consult for Enable and Ultrafast considered that CEPA's reasoning was no excuse for not making an adjustment:⁸³⁰

a regulatory decision maker always has to make judgements on a variety of subject matters to come to an equitable regulatory decision, even though they cannot be based on "robust estimations".
- 6.500 As part of the 2016 review of the IMs determined under Part 4, we considered whether we should make an adjustment to our asset beta estimate for suppliers of electricity distribution services as a result of our decision to change the form of

⁸²⁵ CEPA "Cost of capital for regulated fibre telecommunication services in New Zealand: Asset beta, leverage, and credit rating – Response to submissions" (October 2019), page 29 and 30.

⁸²⁶ Spark "Fibre Input Methodologies: regulatory processes and rules draft, cross submission" (19 June 2020), paragraph 12.

⁸²⁷ Spark "Fibre Input Methodologies: draft determination" (30 January 2020), paragraph 62 with reference to Dr Martin Lally "Review of further WACC submissions" (23 November 2016).

⁸²⁸ Atlas Infrastructure "Fibre input methodologies – input on the draft decision" (30 January 2020), page 1.

⁸²⁹ CEPA "Cost of capital for regulated fibre telecommunication services in New Zealand: Asset beta, leverage, and credit rating – Response to submissions" (October 2019), page 35.

⁸³⁰ WIK consult "Report for Enable Networks and Ultrafast Fibre - In response to the Commerce Commission's Fibre regulation emerging views: Technical paper of 21 May 2019" (10 July 2019), paragraph 20.

control from a weighted average price cap to a revenue cap. We concluded that any change in risk was not material.⁸³¹

6.501 We had previously requested advice from Dr Lally on whether any adjustments to the asset beta should be made due to regulatory differences. Dr Lally stated that:⁸³²

price caps should give rise to higher betas than revenue caps (and hybrid price/revenue caps) because prices caps expose firms to volume risk and this is at least partly systematic.

6.502 However, after reviewing a number of empirical studies, Dr Lally concluded that:⁸³³

there is no empirical study that provides a clear conclusion on the effect of regulation on beta.

6.503 Dr Lally noted that:⁸³⁴

...the best empirical evidence on the impact of regulatory regimes on beta is that of Alexander et al (1996), which suggests that price capping yields higher betas than ROR regulation. Furthermore, as discussed above, this conclusion survives even the concerns raised by Buckland and Fraser (2001). However, the study is now 20 years old and the period examined was only five years. So, there is room for doubt about the validity of the conclusion (a possibility acknowledged even by the authors) and its application to the present time.

6.504 Having considered the above arguments we do not consider that there is a reason to adjust the asset beta as a result of the form of control (revenue cap with a wash up or a price cap).⁸³⁵ We consider that doing so would be speculative and without a sufficient basis, noting that even if it were accepted that a price cap could lead to a higher asset beta than a revenue cap with a wash up, there is no empirical evidence that the estimated asset beta should be adjusted upwards.

6.505 Chorus submitted that if a portion of the financial loss asset will be reviewed in the event of deregulation, this should be reflected in a higher asset beta.⁸³⁶ We discuss the treatment of the financial loss asset in the event of deregulation in our second reasons paper on the financial loss asset. Regarding stranding risk, which we discuss

⁸³¹ Commerce Commission "Input methodologies review decision: Topic Paper 4: Cost of capital issues" (December 2016), paragraphs 331-332.

⁸³² Dr Lally's expert advice on asset beta adjustments and Black's simple discounting rule "Review of WACC issues" (report to the Commerce Commission, 25 February 2016), page 10.

⁸³³ Dr Lally's expert advice on asset beta adjustments and Black's simple discounting rule "Review of WACC issues" (report to the Commerce Commission, 25 February 2016), page 24.

⁸³⁴ Dr Lally's expert advice on asset beta adjustments and Black's simple discounting rule "Review of WACC issues" (report to the Commerce Commission, 25 February 2016), pages 19-20.

⁸³⁵ A revenue cap will apply for at least the first two regulatory periods, ie, until at least 31 December 2027.

⁸³⁶ Chorus "Submission on Fibre input methodologies; Draft Decision" (30 January 2020), paragraph 118.

in the section on asymmetric risk (which begins at paragraph 6.981), for the most part we consider stranding risk is an unsystematic risk which does not affect the asset beta, and we have included an allowance specifically for stranding risk. Our consideration of the case for compensating for asset stranding risk is discussed in the Asymmetric Risk section.

- 6.506 Enable Networks and Ultrafast Fibre and TelstraSuper submitted that the asset beta in the draft decision is out of step with competitive risk from vertically integrated mobile networks providing fixed wireless/5G services.⁸³⁷ However, competitive risk is a business risk rather than a systematic risk and is not typically included in the estimate of an asset beta.
- 6.507 Chorus submitted that our asset beta is out of step with estimates from Crown Infrastructure Partners at the start of the build.⁸³⁸ Telstra Super noted CFH's 2010 assessment, based on data for NBN Co and Openreach, which produced a range of 0.50 to 0.65.⁸³⁹ We consider this matter as part of our deliberations on the risk-free rate for the pre-implementation period.
- 6.508 In summary, we acknowledge that our comparator sample includes vertically integrated firms that may be higher risk than the regulated providers because of their retail operations, and also includes firms that may be lower risk than the regulated providers because of their wholesale operations associated with tower and satellite services. We also acknowledge that some firms in the sample may be at an earlier stage of fibre rollout than the regulated providers, which would increase their risk to the extent that operating leverage influences the asset beta.
- 6.509 However, having regard to all submissions and the advice from CEPA, overall, we do not consider that there is a sufficient basis for us to not use the information in the comparator sample or to make specific adjustments to the average asset beta from the comparator sample.
- 6.510 Overall, we consider that giving each firm in the comparator sample equal weight provides an estimate of the asset beta that is reasonable and fairly weighs the evidence before us.

⁸³⁷ Enable Networks Limited and Ultrafast Fibre Limited "Cross submission on NZCC fibre input methodologies: draft decision" (17 February 2020), paragraph 2.5 and TelstraSuper (24 January 2020), page 3.

⁸³⁸ Chorus "Cross-submission in response to the Commerce Commission's Fibre input methodologies: Draft decision (17 February 2020), paragraph 5.1.

⁸³⁹ TelstraSuper "Fibre Emerging Views submission" (16 July 2019), page 2

Step 6: calculate the average asset beta for the sample

- 6.511 Step 6 involves re-levering the average asset beta from the comparator sample to calculate an equity beta using the Commission's assumed notional leverage.
- 6.512 We did not receive submissions on this matter and have not changed our approach in the draft decision.
- 6.513 The IM specifies an equity beta for all regulated providers of 0.7. This estimate is the result of using an asset beta of 0.50 and a notional leverage of 29%.

Regulated providers subject only to ID regulation should not have a different asset beta to regulated providers subject to PQ regulation

- 6.514 Our decision is to apply the same asset beta to regulated providers subject to PQ as regulated providers subject only to ID regulation. This is the same position as in the draft decision.
- 6.515 We were open to evidence that asset betas should be adjusted or separately estimated due to different systematic risks across different regulated providers.
- 6.516 WIK Consult and Castalia for Enable and Ultrafast submitted that regulated providers should have their asset beta adjusted for the demand risk arising from competition and especially from Chorus' use of its copper network.⁸⁴⁰ However, these are business risks rather than systematic risks and are not typically included in the estimate of an asset beta.
- 6.517 Castalia submitted that the smaller size of the regulated providers subject only to ID regulation warrants an adjustment to the cost of equity. CEPA noted that regulators have considered this issue in the past and have typically not taken size into account and do not think Castalia has provided any new evidence for why we should take size into account.⁸⁴¹ We agree with this.
 - 6.517.1 First, it has not been established that smaller companies have a higher cost of capital than implied by the CAPM.
 - 6.517.2 Second, even if there is a small company premium it is not clear that this is relevant under Part 6 of the Act. The focus on outcomes in workably competitive markets requires a focus on the efficient cost of capital, over time, for an industry. Firms which incur higher costs, by

⁸⁴⁰ WIK consult "Report for Enable Networks and Ultrafast Fibre - In response to the Commerce Commission's Fibre regulation emerging views: Technical paper of 21 May 2019" (10 July 2019), paragraph 24. Enable Enable Network and Ultrafast Fibre "Submission on NZCC Fibre Input Methodologies – Draft Decision" (30 January 2020), paragraph 10.2.

⁸⁴¹ CEPA "Cost of capital for regulated fibre telecommunication services in New Zealand: Asset beta, leverage, and credit rating – Response to submissions" (October 2019), page 29 and 30.

not increasing their market capitalisation, cannot expect to recover these costs from consumers in workably competitive markets.

Accordingly, and consistent with the Part 6 Purpose, they should not expect to recover these costs in markets regulated under Part 6 either.

- 6.518 WIK Consult for Enable and Ultrafast submitted that Chorus and the other LFCs have a similar degree of operating leverage due to their investment in fibre infrastructure. However, WIK Consult submitted that Chorus' operating leverage is reduced as a result of the revenue cap regime dampening its revenue volatility.⁸⁴²
- 6.519 Oxera considered that "the revenue cap regime does not act as a demand buffer in all circumstances and considered a sector-wide asset beta is appropriate."⁸⁴³
- 6.520 Overall, we do not consider there is sufficient evidence to support a difference between the systematic risk for businesses subject to ID regulation or the PQ regime and if so whether this would be material. We have therefore decided to not make an adjustment to the asset beta of the regulated providers subject only to ID regulation.

Tax adjusted market risk premium

Summary of final decision

- 6.521 This section describes the approach to the TAMRP for the cost of capital IM applying to the supply of regulated FFLAS.⁸⁴⁴
- 6.522 The IM specifies a TAMRP for all regulated providers of 7.5%.

Our reasons for setting TAMRP at 7.5%

- 6.523 Our final decision is that setting a TAMRP at our best estimate best gives effect to the s 166(2) purposes of the Act. We consider that this should be expected to adequately compensate investors (in combination with the other elements of cost of capital) but still limit the ability to extract excessive profits.
- 6.524 Our best estimate of the TAMRP is 7.5%. This estimate:

⁸⁴² WIK consult "Report for Enable Networks and Ultrafast Fibre - In response to the Commerce Commission's Fibre regulation emerging views: Technical paper of 21 May 2019" (10 July 2019), paragraph 24.

⁸⁴³ Oxera "Compensation for systematic risks report - Prepared for Chorus" (15 July 2019, updated 31 July 2019), section 3B.

⁸⁴⁴ The TAMRP represents the additional return (adjusted for New Zealand's tax regime) that investors require to invest in a market portfolio of average market risk, over investing in safer - but lower yielding - government bonds.

- 6.524.1 best reflects the range of evidence available, including both historical returns and expected future returns. These are described in greater detail from paragraph 6.540 and combine forward-looking and backward-looking estimates; and
- 6.524.2 is consistent with the range of TAMRP estimates used by New Zealand market participants, including New Zealand investment banks.

6.525 This estimate remains unchanged for PQ purposes whether the term of the PQ path it applies to is three years, four years or five years.

Tax adjusted market risk premium

- 6.526 The MRP measures the additional expected return over and above the risk-free rate required to compensate investors for holding the market portfolio. It represents the premium investors can expect to earn for bearing only systematic (market) risk. The form of the MRP that is consistent with the simplified SBL-CAPM is the TAMRP.
- 6.527 The TAMRP applied in the SBL-CAPM utilises a tax adjustment to the standard MRP to take into account the treatment of taxes in New Zealand.⁸⁴⁵ The TAMRP is neither a regulated provider-specific parameter nor an industry-specific parameter, but rather is common to all assets in the economy.
- 6.528 In this paper data relating to MRP estimates has been converted to the TAMRP equivalent. In the interest of brevity, the term ‘TAMRP’ is used in the text that follows except where there is specific reference to an MRP value.
- 6.529 The TAMRP is not directly observable and therefore needs to be estimated. This is because:
- 6.529.1 the TAMRP is an *ex-ante* (forward-looking) concept and, as a result, reflects investors’ expectations; and
- 6.529.2 the market portfolio itself cannot be observed as market values for many assets are not known, so it requires the use of a proxy (eg, returns on an index of listed equities).
- 6.530 The TAMRP is also calculated using an estimate of the risk-free rate. When we estimate the TAMRP we need to specify the term of the risk-free rate. We have

⁸⁴⁵ The standard version of the CAPM assumes that all sources of investment income are equally taxed at the personal level. This is not a good description of the New Zealand tax regime, because both capital gains and dividends are less onerously taxed than interest (the favourable treatment of capital gains tax is due to exemption of many investors and, in respect of the rest, the opportunity for deferring payment until sale of the asset. The favourable treatment of dividends arises from dividend imputation). Consequently, it is common practice in New Zealand to invoke a CAPM that recognises the favourable tax treatment of equity returns.

assumed a term for the risk-free rate which matches the regulatory period. For the detailed reasons for our estimation of the risk-free rate see from paragraph 6.81 onwards, which considers the risk-free rate in relation to the cost of debt.

Relevance of the Commission's previous estimates of TAMRP

- 6.531 TAMRP, by definition, is an economy-wide parameter which should not vary by sector, service or company. As discussed below TAMRPs are also expected to be relatively stable over time. Given this we consider our previous decisions promoting the outcomes in s 52A of the Commerce Act 1986 to provide useful insights when estimating the TAMRP that best give effect to the s 166(2) purposes under Part 6 of the Act.
- 6.532 The table below shows the historic series of our estimates of TAMRP for different sectors.

Table 6.10 Estimates of the TAMRP used by the Commission

Decision	Year of Decision	TAMRP Estimate
Airports Inquiry ⁸⁴⁶	2002	8%
Telecommunications Service Obligations (TSO) determinations - 2001-2002	2003	8%
TSO determinations - 2002-2003 onwards	2005 - 2008	7%
Gas Control Inquiry ⁸⁴⁷	2004	7%
Unison Networks Limited (Unison) Post-breach Inquiry ⁸⁴⁸	2007	7%
Gas Authorisation ⁸⁴⁹	2008	7%
IMs relating to the supply of electricity distribution services and gas pipeline services ⁸⁵⁰	2010	7%
IMs relating to the supply of electricity transmission services ⁸⁵¹	2010	7.5% until June 2011 7% thereafter

846 Commerce Commission "Final Report: Part IV Inquiry into Airfield Activities at Auckland, Wellington and Christchurch International Airports" (1 August 2002).

847 Commerce Commission "Gas Control Inquiry: Final Report" (29 November 2004).

848 Commerce Commission "*Regulation of Electricity Lines Businesses - Targeted Control Regime - Reasons for Not Declaring Control - Unison Networks Limited*", 11 May 2007, pp. 38-39.

849 Commerce Commission, *Gas Authorisation Decisions Paper*, 30 October 2008.

850 Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010).

851 Commerce Commission "Input methodologies (Transpower) reasons paper" (22 December 2010).

IMs relating to the supply of specified airport services⁸⁵²	2010	7.5% until June 2011 7% thereafter
UCLL & UBA FPP⁸⁵³	2015	7%
Review of the IMs determined under Part 4⁸⁵⁴	2016	7%

6.533 However, as set out below we have estimated the TAMRP for fibre independently of the estimates described above.

Term of the risk-free rate used in estimating the TAMRP

- 6.534 The risk-free rate features in three places in the cost of capital calculation. It is explicitly part of both the cost of debt and the cost of equity. In addition, the risk-free rate is also an implied component of the TAMRP (which measures, as outlined above, the additional expected return over and above the risk-free rate required to compensate investors for holding the market portfolio).
- 6.535 Under s 207 of the Act, for the purposes of PQ paths, while the first PQ path lasts three years, subsequent PQ paths can be set for three, four or five years. Consequently, we considered estimates consistent with each of these options. As we have found the TAMRP estimate does not vary between these three potential terms, a single rate for TAMRP is appropriate for all WACC determinations for regulated FFLAS.
- 6.536 We note that a parallel issue arose in 2010 where customised PQ paths under Part 4 could also vary in length.⁸⁵⁵ At that time, we decided that a single TAMRP consistent with a five-year risk-free rate was determined so that a single TAMRP is estimated and that it (generally) matches the term of the regulatory period.⁸⁵⁶ As shown in Table 6.11 below, the effect of estimating the TAMRP for three and four year terms results in the same mean and median result as the five year estimate when rounded to the nearest 0.5%.

Estimating the TAMRP

- 6.537 The TAMRP is a forward-looking concept which cannot be directly observed.

⁸⁵² Commerce Commission “Input methodologies (Airport Services) reasons paper” (22 December 2010).

⁸⁵³ Commerce Commission “Cost of capital for the UCLL and UBA pricing reviews: Final Decision” (15 December 2015).

⁸⁵⁴ Commerce Commission “Input methodologies review decision – Topic Paper 4: Cost of capital issues” (20 December 2016).

⁸⁵⁵ Commerce Act 1986, s 53W.

⁸⁵⁶ Commerce Commission “Input methodologies (electricity distribution and gas pipeline services) reasons paper” (22 December 2010), paragraph H7.42.

- 6.538 Estimating the value of the TAMRP requires a significant amount of judgement. As discussed below there are a range of expert views on matters that are relevant to the estimation of the TAMRP and there is no single approach that provides a correct estimate.
- 6.539 Several approaches can be used to estimate the TAMRP. These approaches include:
- 6.539.1 studies of historic returns on shares relative to the risk-free rate;
 - 6.539.2 surveys of investors asking them to state their expected rate of return for the overall market; and
 - 6.539.3 empirical estimates of the MRP from share prices and expected dividends.
- 6.540 In estimating the value of the TAMRP, we used all three of the above approaches by considering the following methods and information sources.
- 6.540.1 The Ibbotson approach, this uses data from 1931 to estimate the TAMRP.⁸⁵⁷ A critique of this approach is that it fails to correct for pronounced unanticipated inflation between 1926 to 1990. The Siegel estimates attempt to adjust for this effect.
 - 6.540.2 The Siegel 1 methodology, which adjusts the Ibbotson approach on the underlying assumption that TAMRP is stable over time by adding back into the estimation the average long-term real risk-free rate.⁸⁵⁸
 - 6.540.3 The Siegel 2 methodology, which adjusts the Ibbotson approach on the underlying assumption that real total market returns are constant. The two Siegel methodologies can give quite different results due to these quite distinct underlying assumptions.⁸⁵⁹
 - 6.540.4 Surveys of investors' views on TAMRP, which are based on the Fernandez annual survey.⁸⁶⁰ We have also considered available estimates from practitioners in New Zealand as a cross check.
 - 6.540.5 The dividend growth model (**DGM**), which is a forward-looking methodology. This estimates the TAMRP through discounting future dividends on existing shares to the current market value of those shares.

⁸⁵⁷ Martin Lally, Capital Financial Consultants Ltd, "Estimation of the TAMRP" (September 2019), pages 4 to 10 provide the detailed approach and calculation.

⁸⁵⁸ Ibid, pages 10 to 13 provide the detailed approach and calculation.

⁸⁵⁹ Ibid, pages 13 to 15 provide the detailed approach and calculation.

⁸⁶⁰ Pablo Fernandez, Mar Martinez and Isabel Acin "Market Risk Premium and Risk-Free Rate used for 69 countries in 2019: A Survey" (23 March 2019).

This provides an estimated market cost of equity from which the TAMRP can be derived.

- 6.541 The most common approach to estimation of the TAMRP is to use historic returns on the market. While *ex-post* returns have fluctuated significantly over time, regulators and practitioners have typically used or placed weight on estimates over long periods of time.⁸⁶¹
- 6.542 There is debate as to whether historical premiums are accurate predictors of future premiums. A number of prominent finance experts have argued that future rates of return will be less than that experienced historically.⁸⁶²
- 6.543 Similarly, forward-looking estimates from the DGM approach are not without controversy.
 - 6.543.1 The Australian Energy Regulator (**AER**), in its 2018 binding rate of return guidelines, down weighted the reliance on DGM models (compared to its 2013 guidelines). One reason for this was because the AER did not consider that the evidence it reviewed supported the assumption of a stable return on equity (eg, that there was an inverse relationship between the risk-free rate and MRP).
 - 6.543.2 UK regulators have used DGM models; however, they have typically been given less weight and have been used predominately as a cross check to the approach they have placed most weight on.
- 6.544 Surveys of investors can provide an indication of the premium that investors will look for in the future. However, surveys can be unreliable as respondents can, for example, interpret questions in different ways.
- 6.545 There is no consensus on a ‘correct’ methodology for estimating the TAMRP neither is there likely to be a ‘correct’ weighting of the methodologies. We consider that there is no one best way to estimate TAMRP and this is consistent with advice from

⁸⁶¹ Conceptually, over the long term, the occasions on which the premium of actual returns over the risk-free rate exceeds investors’ expectations should be offset by the occasions on which that premium is below investors’ expectations. The average premium will therefore provide an estimate of the premium that on average investors look for.

⁸⁶² See for example Dimson, E., March P. and Staunton M., *Triumph of the Optimists: 101 Years of Global Investment Returns*, Princeton University Press, New Jersey, 2002; Dimson, E., March P. and Staunton M., Global Evidence on the Equity Risk Premium, *Journal of Applied Corporate Finance*, Vol. 14, 2003, pp. 27-38; and Arnott, R. and Bernstein P., What Risk Premium is ‘Normal’?, *Financial Analysts Journal*, Vol. 58, No. 2, March/April 2002, pp. 64-85; Credit Suisse 2012 Global Investment returns yearbook.

Dr Lally. For our final decision we have considered all information before us in reaching a judgement on the best estimate of TAMRP.

The evidence which leads us to our final decision of an estimate of TAMRP of 7.5%

- 6.546 The evidence from forward-looking, historic and survey results of TAMRP support an estimation of the TAMRP at 7.5%.
- 6.547 We have commissioned Dr Lally to estimate the TAMRP and have published his expert report alongside this paper. Dr Lally's estimate of the TAMRP is 7.5%.⁸⁶³ The estimate is based on the median of five different methods as shown in Table 6.11, rounded to the nearest 0.5%.

Table 6.11 Estimates of the TAMRP with Three, Four and Five-Year Risk-Free Rates

	New Zealand			Other Markets ⁸⁶⁴		
	3 year	4 year	5 year	3 year	4 year	5 year
Ibbotson estimate	7.4%	7.4%	7.4%	7.6%	7.5%	7.3%
Siegel estimate: version 1	6.0%	6.0%	6.0%	6.6%	6.6%	6.6%
Siegel estimate: version 2	9.5%	9.4%	9.4%	8.3%	8.3%	8.3%
DGM estimate	7.3%	7.3%	7.3%	8.2%	8.2%	8.2%
Surveys	6.4%	6.4%	6.4%	6.6%	6.6%	6.6%
<i>Mean</i>	7.3%	7.3%	7.3%	7.5%	7.4%	7.4%
<i>Median</i>	7.3%	7.3%	7.3%	7.6%	7.5%	7.3%

- 6.548 The table below provides the comparative figures for the estimates of TAMRP made by Dr Lally for 2010, 2015 and current. Please note over this time methodological changes have occurred which makes comparisons more difficult.

⁸⁶³ We note that Dr Lally also estimated the TAMRP in 2015 for UCLL and UBA. As part of this estimate, Dr Lally estimated the TAMRP for UCLL and UBA services at 7%.

⁸⁶⁴ We take account of other markets because Lally and Randal (2015) examine estimators of the MRP and show that the optimal estimator for a country should place high weight on foreign data. The estimates using only local data are very noisy and the true MRPs do not vary greatly across countries.

Table 6.12 TAMRP estimates by Dr Lally for 2010, 2015 and 2019

Methodology	2010			2015		2019 ⁸⁶⁵	
	New Zealand	US	Other Markets	New Zealand	Other Markets	New Zealand	Other Markets
Ibbotson	7.3%	7.7%	7.5%	7.1%	7.0%	7.4%	7.3%
Siegel version 1	6.4%	7.3%	6.6%	5.9%	5.9%	6.0%	6.6%
Siegel version 2				8.0%	7.5%	9.40%	8.3%
DGM/Cornell*	5.2%	6.8%	-	7.4%	9.0%	7.3%	8.2%
Surveys	8.2%	6.9%		6.8%	6.3%	6.4%	6.6%
Mean	6.8%	7.2%	7.1%	7.0%	7.1%	7.3%	7.4%
Median	6.9%	7.1%	7.1%	7.1%	7.0%	7.3%	7.3%
Rounded to 50 bps	7.0%			7.0% ⁸⁶⁶		7.5%	

*Cornell used in 2010, DGM in 2015, 2019

6.549 There are several observations which can be made.

6.549.1 The Ibbotson estimates have risen. Dr Lally has explained that:⁸⁶⁷

This rise in the Ibbotson estimates for New Zealand is due in approximately equal measure to correction of an error in the 2015 estimates and to the higher values in the additional four years of data.

6.549.2 The rounding methodology has led to a stable 7% estimate in the past but also causes a ‘jump’ in the present circumstances.

6.550 The estimation of the five methodologies by Dr Lally reflects current risk-free rates. The impact of this will vary, by methodology and we recognise the approach to the relationship between the risk-free rate and TAMRP is, internationally, subject to significant divergence of views.

6.550.1 The primary approach of regulators within the UK is to estimate the Total Market Return (**TMR**) using historic long-term outturn data and then to subtract the risk-free rate from this to infer an MRP. This approach relies on the premise that the TMR is stable over time and that there is a

⁸⁶⁵ These estimates are based on a risk-free rate of 5 years to ensure consistency with the historic estimates from 2010 and 2015. The TAMRP using 3- and 4-year risk-free rates is shown in [Table 1.2].

⁸⁶⁶ Dr Lally’s advice notes that the correction of the error in the Ibbotson error for 2015 does not change the estimated TAMRP at that time, Martin Lally, “Capital Financial Consultants Ltd, Estimation of the TAMRP” (September 2019), footnote 2.

⁸⁶⁷ Martin Lally, “Capital Financial Consultants Ltd, Estimation of the TAMRP” (September 2019), page 22

de-facto one-to-one inverse relationship between the risk-free rate and MRP. UK regulators began placing the most weight on this approach following a 2003 report commissioned by a consortium of UK regulators.⁸⁶⁸ The UK regulators recently (2018) commissioned an update to the 2003 report.⁸⁶⁹ Professor Stephen Wright was an expert on both reports, and the approach is often referred to as the “Wright approach”.⁸⁷⁰

- 6.550.2 The AER, in its 2018 binding rate of return guidelines⁸⁷¹ did not consider that the evidence it reviewed supported the assumption of a stable return on equity and that “there is neither strong theoretical reasons, nor strong empirical evidence, to support assumption of an ongoing and consistent inverse relationship between the risk-free rate and the MRP”.⁸⁷² The AER was advised by Partington and Satchell who do not accept this relationship based on the evidence they reviewed.⁸⁷³
 - 6.550.3 Even within Australia there are differences as the Queensland Competition Authority places some weight on both the Wright approach and the DGM approach.⁸⁷⁴
- 6.551 The Siegel 1 methodology implicitly assumes no relationship between the MRP and risk-free rates, while the Siegel 2 methodology implicitly assumes that there is an inverse correlation between the two parameters. Therefore, across the methodologies that we apply, we allow for different assumptions on the relationship between the MRP and risk-free rates.
- 6.552 We note that the 2019 report from Competition Economists Group (CEG) submitted by Vector effectively proposed that we should give no weight to the Siegel 1 methodology and rather use the Siegel 2 methodology when estimating the TAMRP.⁸⁷⁵ We disagree with CEG. For the reasons above we consider both

⁸⁶⁸ Wright, Mason and Miles, A study into certain aspects of the cost of capital for regulated utilities in the UK, February 2003.

⁸⁶⁹ Stephen Wright, Phil Burns, Robin Mason, and Derry Pickford “Estimating the Cost of capital for implementation of prices controls by UK Regulators” (March 2018)

⁸⁷⁰ This is equivalent to the Siegal version 2 methodology.

⁸⁷¹ AER “Rate of return instrument: Explanatory Statement” (December 2018).

⁸⁷² Ibid, page 85.

⁸⁷³ The AER also looked at a broad range of evidence and asked Partington and Satchell to consider submissions. Partington and Satchell were more focused on growth issues for the DGM rather than the inverse relationship. They covered the issue of the inverse relationship in more depth earlier in Partington and Satchell, Report to the AER: Cost of Equity Issues 2016 Electricity and Gas Determinations, April 2016.

⁸⁷⁴ See Queensland Competition Authority, Aurizon Network’s 2017 draft access undertaking, December 2018.

⁸⁷⁵ Competition Economists Group “Dealing with negative risk-free rates”, July 2019

methodologies are legitimate. We consider a strength of Dr Lally's broad approach of taking multiple different estimates is that it does not place too much weight on a single methodology and is therefore likely to produce a better estimate.

- 6.553 Submissions on our draft decision generally agreed with our draft decision to apply a TAMRP of 7.5%.⁸⁷⁶
- 6.554 Some of the submissions compared the existing TAMRP for EDBs with the proposed TAMRP for regulated providers. Vector considers the increase in TAMRP reflects under compensation of the return on equity for EDBs.⁸⁷⁷ Unison noted that given the recalculated TAMRP of 7.5%, it appears the cost of capital for the DPP3 reset is 0.18% too low.⁸⁷⁸
- 6.555 The TAMRP is a WACC component that is set in the EDB IMs and not continuously updated. The TAMRP will move with market conditions and investor expectations of future returns but is considered to be relatively stable over a long period of time on average. This will be considered as part of the next IM review for EDBs. We discuss submissions suggesting resetting the TAMRP at each reset later in this section.
- 6.556 Considering all the evidence before us, we have maintained our draft decision to specify TAMRP for all regulated providers of 7.5% after rounding to the nearest 0.5% as discussed below.

Other evidence on the TAMRP

- 6.557 In addition to the advice from Dr Lally we have also collated investment banks and analysts' views to better understand what estimates of TAMRP are used in the market. The table below provides the results of this survey which range from 6.5% to 7.8%. The results are not inconsistent with a TAMRP of 7.5%.

⁸⁷⁶ For example, see Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), para 203

⁸⁷⁷ Vector Communications "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 10.

⁸⁷⁸ Unison "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 1.

Table 6.13 TAMRP estimates used by New Zealand investment banks and analysts

Investment bank	Published	TAMRP estimate used
UBS	Feb, 2019	7%
Deutsche Bank	Feb, 2019	6.5%
Forsyth Barr	Mar, 2019	7.8%
Macquarie	Feb, 2019	7%
Woodward	Feb, 2019	7%
Jarden	Aug, 2019	7.4%

We maintain our decision to round TAMRP to the nearest 50 basis points

- 6.558 We have considered and accept the advice we have previously received from Dr Lally on rounding the TAMRP estimate to the nearest 50 bps.
- 6.559 Dr Lally's rationale for the rounding methodology was laid out by him in full in a report to the Queensland Competition Authority which he refers to in his papers.⁸⁷⁹ He considers that the rounding has little impact on the accuracy of the estimation measured through the standard error. However, its value impact will incentivise submissions advocating an increase (or decrease) which adds to administrative burden. Over time the small over and under estimations implicit (but essentially unobservable) in a TAMRP rounded to the nearest 50bps will net out. In this respect it is not error in any one regulatory period which matters, but error over the life of the assets.
- 6.560 We agree that the estimation of TAMRP is inherently subject to error and trying to refine to below 50bps is likely futile. Furthermore, the technical nature of the estimation leaves open a very wide range of areas to be 'tweaked' to produce a higher or lower estimate which, given the value to regulated providers, may generate large amounts of expert views with little benefit to end-users.
- 6.561 In submissions on our draft decision, Vocus, BARNZ and MEUG do not agree with our rounding to the nearest 50 basis points.⁸⁸⁰ BARNZ and MEUG recommended that we accept the median point estimate of 7.30% as the appropriate TAMRP.⁸⁸¹ 2Degrees

⁸⁷⁹ Martin Lally "The risk-free rate and the market risk premium" (23 August 2012).

⁸⁸⁰ For example, see Vocus "Cross-submission on Fibre input methodologies draft decision" (18 February 2020), p. 3

⁸⁸¹ See MEUG "Cross-submission on Fibre input methodologies – Draft decision" (30 January 2020), para 15, and BARNZ "Submission on Fibre input methodologies – Draft decision" (24 January 2020), para 4.

support Vodafone's submission on our draft decision noting that rounding the TAMRP to the nearest 0.5% contributes to the range of decisions that favour LFCs.⁸⁸²

- 6.562 MEUG argues that high levels of precision can be spurious. However, in the special case where the median TAMRP is close to the mid-point for the rounding to the nearest 0.5%, it is not.⁸⁸³
- 6.563 BARNZ claims that there is no reason why the TAMRP alone should be rounded, and not the other WACC parameters. It also stated:⁸⁸⁴

The impact of rounding in this case has also been to exacerbate the impact of a change to the TAMRP. The TAMRP that is applied (here we are assuming that, as a market-wide metric, the new TAMRP may be applied to other regulated industries in time) will change from 7.0% to 7.5%, even though the change in the median estimate is only from 7.1% to 7.3%, relative to Lally's 2015 estimate. To put it another way, the WACC estimate will have been changed by 0.3%, despite the median estimate only changing enough to justify a 0.12% change in the WACC. This creates a very material financial impact for regulated suppliers and their consumers based on an arbitrary rounding decision.

- 6.564 Enable and Ultrafast Fibre disagreed with BARNZ statements against rounding and support Dr Lally's view that the costs significantly outweigh the benefits, noting that other WACC parameters are rounded and that rounding provides protection from frequent changes to the TAMRP.⁸⁸⁵
- 6.565 Vocus argued that the Commission should not round the TAMRP estimate and that rounding to one decimal point is sufficient to avoid a perception of false precision.⁸⁸⁶ Vocus states:⁸⁸⁷

It appears that the use of rounding rules has resulted in lower than otherwise WACC under Part 4 and a higher than otherwise WACC under Part 6. While it could be argued the impact of rounding will average out over-time this would be over a very significant length of time, particularly if the TAMRP is only reviewed as part of the statutory reviews of the IMs, and not at each reset.

- 6.566 Lally's expert report published in May 2020 responds to submissions on our draft decision, including those on rounding the TAMRP.⁸⁸⁸ Lally summarises that rounding to the nearest 0.5% is desirable because it saves regulators the need and hence the

⁸⁸² 2degrees "Submission on Fibre input methodologies – Draft decision" (18 February 2020), p. 4.

⁸⁸³ MEUG "Submission on Fibre input methodologies – Draft decision" (30 January 2020), p. 2.

⁸⁸⁴ BARNZ "Submission on Fibre input methodologies – Draft decision" (24 January 2020), p. 3.

⁸⁸⁵ Enable and Ultrafast Fibre "Submission on Fibre input methodologies – Draft decision" (30 January 2020), para 3.1-3.2.

⁸⁸⁶ Vocus "Cross-submission on Fibre input methodologies draft decision" (18 February 2020), para 1ix.

⁸⁸⁷ Vocus "Cross-submission on Fibre input methodologies draft decision" (18 February 2020), para 16-18.

⁸⁸⁸ Lally "Further issues concerning the cost of capital for fibre input methodologies" (25 May 2020), section 2.4.

cost of trying to estimate the TAMRP to a much higher degree of precision than is actually attainable, and it limits lobbying over changes in the TAMRP estimate that are too small to have any confidence in. The downside is that estimation errors will be larger than had rounding to the nearest 0.05% been used, but these estimation errors are small and will tend to offset over time.

- 6.567 Lally also responds to MEUG's submission asserting that the Commission does not apply a rounding process to any other WACC parameters. Lally notes that rounding must be and is always used because parameter values are not constrained to a finite number of decimal points, and it is therefore simply a question of the degree of rounding. Lally notes that the TAMRP cannot be observed and that the choice of rounding reflects the extent to which the TAMRP can be even moderately well estimated.⁸⁸⁹
- 6.568 Our methodology uses the median estimate (of the five approaches) and applies the rounding rule to this value. Although this is our best estimate of the TAMRP, there will be imprecision. Our rounding rule works on the basis that estimating the TAMRP to a high level of accuracy is not practically achievable, and that estimation errors will generally cancel out over the lives of the assets.
- 6.569 We agree with submissions that applying the rounding rule can lead to larger moves between estimations compared with using the median estimate. However, using the median estimate places significant weight on the median approach and estimate.
- 6.570 Considering all the evidence and submissions before us, we have decided to maintain our draft decision to round the TAMRP to the nearest 50 basis points. Overall, a move away from rounding does not appear to better give effect to the Part 6 purpose statement. We consider that rounding the TAMRP provides regulated suppliers with certainty without any erosion of investment incentives.

Our decision is to specify the value of TAMRP within the IMs

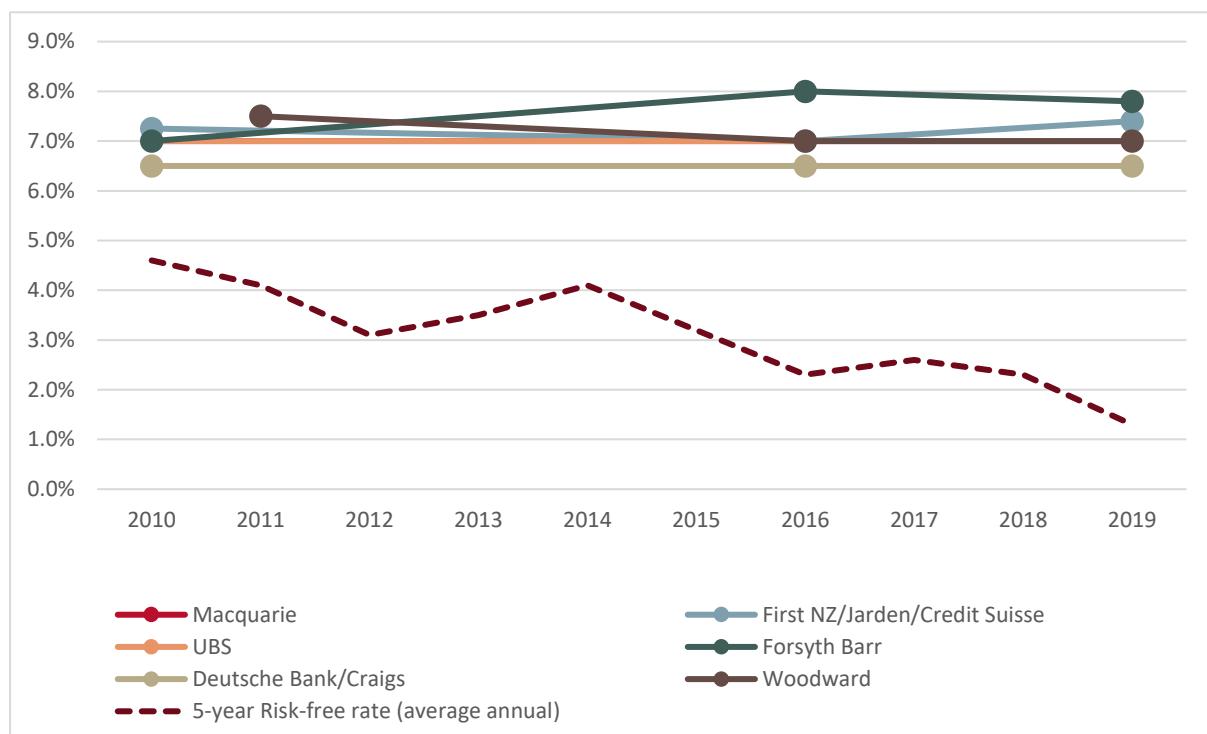
- 6.571 We consider there is an insufficient case for changing our TAMRP estimate on a regular basis. This is similar to the practice of many advisers who do not regularly change their estimate of the TAMRP. As we discuss in our rounding methodology in paragraph 6.559, our ability to discern small movements in the TAMRP is limited.
- 6.572 We consider it better meets the purpose of the IMs in s 174 to promote certainty to specify a value within the IMs. As discussed below this does not preclude the TAMRP from being amended in the IMs between our statutory reviews if this is warranted by the particular circumstances.

⁸⁸⁹ Lally "Further issues concerning the cost of capital for fibre input methodologies" (25 May 2020), p. 10-11.

6.573 It is likely that at any point in time, the actual TAMRP and our estimate will vary. But we expect over the life of the assets, there is no bias in the direction of this error and consequently investors' expectations for a normal return over the life of the assets is maintained.

6.574 We note that, observing investment bank estimates of the MRP included in our surveys from previous decisions, the MRP assumptions are consistent over time.⁸⁹⁰ This is in contrast to the risk-free rate which has generally been falling over the period. We note that the MRP assumptions used by the investment banks in New Zealand do not appear to exhibit a strong negative or positive relationship with the risk-free rate.⁸⁹¹

Figure 6.7 Investment Bank estimates of TAMRP against the 5-year risk-free rate



⁸⁹⁰ The estimates are from surveys undertaken as part of the 2010 Part 4 IMs, the 2016 Part 4 IM review and as part of this Fibre IM decision. We have also added in Woodward estimates from 2011 and 2016 that were not part of our previously published decisions.

⁸⁹¹ We acknowledge that there may be some circularity in using these MRP assumptions if investment banks base their assumptions on our WACC decisions.

6.575 Some submissions on our draft decision argued that the TAMRP should not be prescribed in the WACC IMs but should be determined at the start of each regulatory period.⁸⁹²

6.576 Vocus stated that the Commission should determine TAMRP at each PQR determination rather than setting it in the WACC IMs.⁸⁹³ ENA suggests that there needs to be consideration as to whether the TAMRP is hard coded value in the IM or is a value to be updated each time WACC is reset.⁸⁹⁴

6.577 Vector stated that:⁸⁹⁵

The Commission may get fixated on making more regular changes to its TAMRP for changes to its median estimate as suggested by BARNZ and MEUG, but this masks the real issue with the TAMRP. The real concern with the TAMRP is there are situations where the assumptions in the estimates for the TAMRP are invalidated. This is particularly relevant for a hardcoded TAMRP in the IMs. When this is the case it will involve a WACC being set that is misaligned with the return on equity expected by commercial investors.

- 6.578 The trade-off of more frequent estimations would be increased volatility and uncertainty compared with a value set in the IMs and most likely only marginal benefits in accuracy given the inherent uncertainty of the estimate.
- 6.579 Our estimates of the market risk premium have been relatively stable over a long period of time. There are likely to be short term changes to the TAMRP with changes in the economic environment. However, these movements may not reflect the value expected to prevail over the period until the IMs are next reviewed.
- 6.580 If there are significant changes in the economic environment, we are able to make changes to the TAMRP value in the IMs (although this would not take effect until the subsequent regulatory period after the change has been implemented).
- 6.581 Overall, it is not clear that a move to more frequent estimations is an improvement and better promotes the Part 6 purpose. We consider that setting the TAMRP in the IMs promotes certainty for regulated suppliers and consumers without eroding incentives for investment. Therefore, we maintain our decision to specify the value of TAMRP within the IMs.

⁸⁹² For example, see ENA “Submission on Fibre input methodologies – Draft decision” (30 January 2020), Vector Communications “Submission on Fibre input methodologies – Draft decision” (30 January 2020)

⁸⁹³ Vocus “Cross-submission on Fibre input methodologies – Draft decision” (17 February 2020), para 1ix

⁸⁹⁴ ENA “Submission on Fibre input methodologies – Draft decision” (30 January 2020), p. 6.

⁸⁹⁵ Vector Communications “Cross-submission on Fibre input methodologies – Draft decision” (17 February 2020), para 25.

The impact of negative real interest rates on the estimation of the TAMRP

6.582 In its submission on our draft decision, Unison recommends that we:⁸⁹⁶

- 6.582.1 review the calculation of risk-free rate and market risk premium in light of negative real Government bond yields; and
- 6.582.2 publish our views on why we consider an estimate of a negative real risk-free rate is compatible with the market risk premium.

6.583 CEG on behalf of Vector submitted that:

- 6.583.1 Current 5 year risk-free rates are exceptional, indeed unprecedented, in New Zealand's experience. This raises the question as to whether the cost of equity for regulated businesses should also be set at exceptional/unprecedentedly low levels. This is not a question that the Commission fully grappled with in its IM decision because the fall to current (negative real) levels of risk-free rates had not occurred at that time.⁸⁹⁷

6.584 We consider that our methodologies for estimating the TAMRP have sufficient flexibility to deal with negative real interest rates (and hence potentially a negative risk-free rate). The formulation of the MRP (and thus the TAMRP) will not change with negative rates – it is still the premium for holding equity risk over the risk-free rate. Therefore, it depends on the relationship between changes in MRP and the risk-free rate.

6.585 In our draft decision we noted that there is no consensus on the direct relationship between the MRP and the risk-free rate, with different regulators utilising different approaches and assuming different relationships.⁸⁹⁸ We do not consider that there is new evidence since our draft decision to suggest a stronger preference for an inverse or no relationship.

6.586 This issue was discussed in our UCLL and UBA services final pricing principle (FPP) decision in 2015.⁸⁹⁹ We noted that other regulators, and their expert advisors, had not found clear evidence of a relationship between the risk-free rate and MRP.⁹⁰⁰

⁸⁹⁶ Unison "Submission on Fibre input methodologies – Draft decision" (30 January 2020), p. 2.

⁸⁹⁷ Competition Economists Group "Dealing with negative risk-free rates", July 2019, para 46.

⁸⁹⁸ Commerce Commission "Fibre input methodologies – Draft decision paper" (19 November 2019), para 3.966.

⁸⁹⁹ Commerce Commission "Cost of capital for the UCLL and UBA pricing reviews: Final Decision" (15 December 2015), paras 177–192.

⁹⁰⁰ Ibid, para 187.

6.587 In more recent regulatory decisions, the AER state that there is debate between experts whether there could be a correlation between the risk-free rate and the MRP.⁹⁰¹ The AER summarises some of the responses on this issue:

- 6.587.1 HoustonKemp states that there is clear evidence from valuation reports suggesting an inverse relationship between the MRP and the risk-free rate;⁹⁰²
- 6.587.2 Frontier states that there is evidence of an inverse relationship between the MRP and risk-free rate as shown by valuation reports as well as the AER's own DGM estimate of the return on equity;⁹⁰³
- 6.587.3 The AER notes that there are a number of academic papers which suggest a positive relationship between the risk-free rate and the MRP, including Li, Kim and Lee, and Damodoran;^{904 905 906}
- 6.587.4 McKenzie and Partington state that it is still an open question on the relationship between the MRP and risk-free rate, and any relationship that may exist is not sufficiently well established to form the basis for regulatory adjustment to the MRP;⁹⁰⁷
- 6.587.5 The AER also received advice from Partington and Satchell that a negative correlation between the risk-free rate and the MRP has no well accepted theoretical support and is not used much in practice.⁹⁰⁸

6.588 A report by CEPA for Ofgem notes that there is no consensus on the precise relationship between the risk-free rate and MRP, but acknowledges that UK

⁹⁰¹ AER "Market Risk Premium, risk free rate averaging period and automatic application of the rate of return" (March 2018), section 2.2.

⁹⁰² Houston Kemp "The Cost of Equity, Response to the AER's Draft Decisions for the Victorian Electricity Distributors" (January 2016).

⁹⁰³ Frontier Economics "The Relationship between government bond yields and the market risk premium" (January 2016).

⁹⁰⁴ Li "Time-varying risk aversion and asset prices, Journal of Banking and Finance" (January 2007).

⁹⁰⁵ Kim & Lee "Stock returns, asymmetric volatility, risk aversion and business cycle: Some new evidence" (July 2007).

⁹⁰⁶ Damodaran "Equity Risk Premiums (ERP): Determinants, Estimation and Implications – the 2012 Edition" (March 2012).

⁹⁰⁷ Michael McKenzie and Graham Partington "Review of the AER's Overall Approach to the risk-free rate and MRP" (February 2013), p. 28.

⁹⁰⁸ Graham Partington and Stephen Satchell "Cost of Equity issues 2016 Electricity and Gas Determinations" (April 2016), p. 30-31.

regulators have historically worked with the view that the total market return is more stable than the risk-free rate.⁹⁰⁹

- 6.589 There is no new evidence since our draft decision to suggest a stronger preference for an inverse or no relationship.
- 6.590 Our methodology for estimating the TAMRP therefore averages across a range of different approaches that allow for the possibility of an inverse or no relationship, and cross-checks this against investment bank estimates.

Equity issuance costs

- 6.591 Our decision is to not include equity issuance costs.
- 6.592 We did not provide a view on equity issuance costs in our draft decision and we did not receive any submissions on this matter.
- 6.593 We do not consider that an allowance for equity issuance costs is required because:
 - 6.593.1 Equity capital is normally available into perpetuity and does not need regular refinancing.⁹¹⁰
 - 6.593.2 Each company chooses what proportion of its profits it will retain in the businesses. Retaining profits can be used to finance growth in the asset base without incurring issuance costs.
 - 6.593.3 In general, given the characteristics of regulated providers, their ownership, and their capacity to contribute additional equity, there is no evidence of a material issue regarding equity raising costs.
- 6.594 Consequently, we have not included an equity issuance cost allowance as part of the cost of capital IMs.

⁹⁰⁹ Ofgem “Review of Cost of Capital ranges for new assets for Ofgem’s Network Division” (23 January 2018), section 3.4.1.

⁹¹⁰ In contrast, debt capital normally has a finite period to maturity, so debt capital needs to be re-financed regularly.

Leverage

- 6.595 The cost of capital IM specifies a service-wide notional leverage of 29% when estimating the cost of capital for regulated FFLAS; this applies to the WACC methodology for PQ paths and ID.
- 6.596 Leverage refers to the mix of debt and equity capital that is used to fund an investment. It is used in two places when estimating the cost of capital. The first is to re-lever the asset beta into an equity beta (and vice versa). The second is to derive a WACC from the estimates of the cost of debt and the cost of equity.

We address the leverage anomaly of the SBL-CAPM

- 6.597 When the SBL-CAPM is used to estimate the cost of equity (in conjunction with the simplified beta leveraging formula), and the cost of debt includes a positive debt premium, the resulting WACC estimate increases with leverage.
- 6.598 Equivalently, when using the SBL CAPM model, WACC increases with leverage (an increase in leverage results in an increase in cost of capital), and this is contrary to finance theory and to what is observed in workably competitive markets.
- 6.599 Our decision is to address this positive relationship between leverage and WACC, the leverage anomaly of the SBL-CAPM, through our approach to leverage estimation.
- 6.600 We address the leverage anomaly of the SBL-CAPM to protect end-users against a cost of capital that is too high and against the risk of financial distress of regulated providers as we explain at paragraph 6.607, thereby promoting the outcomes in s 162(a) of regulated providers having incentives to innovate and to invest and s 162(d) of regulated providers being limited in their ability to extract excessive profits, and promoting workable competition in s 166(2)(b).
- 6.601 Our reasons for addressing the anomaly relate to the magnitude of the anomaly effect on the cost of capital if left unaddressed and the inconsistency with the workings of workably competitive markets.
- 6.602 It is generally understood that leverage does not affect a firm's WACC in a tax-neutral environment because the cost of capital reflects the riskiness of cashflows, rather than how these are divided between equity and debt investors.⁹¹¹

⁹¹¹ Franco Modigliani and Merton Miller "The Cost of Capital, Corporation Finance and the Theory of Investment" (1958) 48(3) American Economic Review 261–297.

- 6.603 Interest costs are tax deductible, but dividends are not, so when corporate tax is considered, the WACC is generally understood to decline as leverage increases.⁹¹²
- 6.604 When personal tax is considered, some of the tax advantages of debt are reduced. The New Zealand dividend imputation credit regime allows firms to pass on to their shareholders a credit for the tax the company has already paid.⁹¹³
- 6.605 However, a well-known ‘leverage anomaly’ exists when using the SBL-CAPM. When the SBL-CAPM is used to estimate the cost of equity (in conjunction with the simplified beta leveraging formula), and the cost of debt includes a positive debt premium, the resulting WACC estimate increases with leverage.⁹¹⁴
- 6.606 This positive relationship between leverage and WACC is inconsistent with the behaviour of firms in workably competitive markets. Firms in those markets issue debt, provided debt levels are prudent, and are considered to be acting rationally when doing so.
- 6.607 In regard to regulated providers, if left uncorrected, this anomaly would result in such providers obtaining an increase in the cost of capital if they were able to persuade the regulator to use higher leverage assumptions when applying the SBL-CAPM. If we were to regard the actual leverage of regulated providers as a relevant consideration in deciding on the leverage assumption, such providers would have an incentive to increase their leverage which could be detrimental to the long-term benefit of end-users by raising the risk of bankruptcy.

We address the leverage anomaly with a service-wide notional leverage

- 6.608 Our decision is to use a service-wide notional leverage to address the leverage anomaly of the SBL-CAPM.
- 6.609 Addressing the leverage anomaly, in the first instance, means decoupling regulated providers’ actual leverage from the cost of capital IM to avoid the risk of regulated providers increasing leverage to obtain a higher cost of capital, in other words, to eliminate the incentive effect of the leverage anomaly.
- 6.610 We identify two main options to overcome the leverage anomaly in the SBL-CAPM model.

⁹¹² Franco Modigliani and Merton Miller “Corporate Income Taxes and the Cost of Capital: A Correction” (1963) 53(3) American Economic Review 433, pages 433–443.

⁹¹³ Not all equity investors in the New Zealand market can fully utilise imputation credits. In particular, international investors cannot utilise imputation credits. However, this does not mean such investors have a higher estimate of the cost of capital than domestic investors.

⁹¹⁴ Martin Lally “WACC and Leverage” (report prepared for the Commerce Commission, 17 November 2009).

6.610.1 **Option 1:** use a notional leverage informed by the average leverage of the sample of comparator companies used to estimate asset beta.

6.610.2 **Option 2:** use non-zero debt betas.

- 6.611 Debt beta measures a firm's systematic risk associated with borrowing and is measured by the sensitivity of the returns on corporate debt to movements in returns on the market portfolio of all assets.
- 6.612 We recognise that the greater the leverage, the more it resembles equity. Therefore, the greater the systematic risk of debt due to leverage, the greater the debt beta. Consequently, in principle, debt betas should be included in the cost of capital calculation.
- 6.613 However, we note that there are practical difficulties in accurately estimating debt betas. Those challenges to the use of non-zero debt betas remain. In advice to us in 2009, Dr Lally considered that the policy to minimise the effect of the anomaly was far from clear and that measurement difficulties would seem to rule out using a non-zero debt beta explicitly.⁹¹⁵
- 6.614 We consider that the best way to produce an unbiased WACC, reflecting outcomes in workably competitive markets, balancing s 162 (a) and (d) outcomes, and promoting workable competition consistent with s 166(2)(b), is to use the same approach that was developed in 2010 for Part 4 and has been used since in Part 4 and for the copper FPP.⁹¹⁶ That approach involves adopting as the asset beta the average across comparator companies of de-levered equity betas combined with the debt premium in the cost of debt being weighted by the average leverage of the comparator companies.⁹¹⁷⁹¹⁸
- 6.615 We note that no submitters raised concerns on our draft decision to use a notional leverage and Chorus has previously indicated support of the notional approach.⁹¹⁹

⁹¹⁵ Martin Lally "WACC and Leverage" (report prepared for the Commerce Commission, 17 November 2009), page 7.

⁹¹⁶ Commerce Commission "Cost of capital for the UCLL and UBA pricing reviews: Final Decision" (15 December 2015).

⁹¹⁷ In 2010 PwC submitted on this approach, see PwC "Submission on the Cost of Capital parameter estimates in the Commerce Commission's Draft Electricity Distribution Services Input Methodology Determination: a report prepared for Electricity Networks Association" 13 August 2010, pages 7-8, 56.

⁹¹⁸ In 2010, following a submission from PwC for ENA, we identified the option of using the average leverage of the sample of comparator companies used to estimate asset beta to overcome this anomaly. See Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (December 2010), para H3.42-H3.45 and H3.59-H3.64.

⁹¹⁹ Oxera "Compensation for systematic risks" (July 2019), page 39.

Similarly, no submitters objected to our view to set the notional leverage at the service level, in other words to set a service-wide leverage for regulated providers.

We use a service-wide notional leverage informed by the average leverage of the asset beta comparator sample

- 6.616 Our decision is to use a service-wide notional leverage informed by the average leverage of the sample of comparator companies used to estimate asset beta.
- 6.617 In practice this means using a leverage estimation approach that is consistent, to the extent possible, with our approach to estimating asset beta. Specifically, our decision is to:
 - 6.617.1 use the comparator sample that also informs the calculation of asset beta, described at paragraphs 6.417 to 6.440;
 - 6.617.2 use our own averaging methodology (on that comparator sample), consistent with the method to calculate asset beta, described at paragraph 6.443;
 - 6.617.3 have regard to the average leverage calculated using the period 2017-19, also consistent with our approach to asset beta described at paragraph 6.444.
- 6.618 We consider that it is important that both asset beta and leverage are set using data from the same comparator sample, across the same time periods, given our approach to addressing the leverage anomaly.
- 6.619 Submitters generally did not raise concerns on our draft decision to use a comparator sample estimate to inform the notional leverage.
- 6.620 Some submitters suggested there needs to be strict consistency between leverage and credit rating.⁹²⁰ However, we consider that this view is a variant on the submissions discussed at paragraph 6.380, and for the same reasons we do not find strict mathematical consistency between the sample set credit rating and leverage is possible or required although we agree inconsistency should be avoided, as shown at paragraphs 6.382 to 6.382.3.
- 6.621 Our decision to use a service-wide notional leverage informed by the average leverage of the sample of comparator companies used to estimate asset beta remains unchanged from the draft decision.

⁹²⁰ Enable and Ultrafast Fibre “Cross-submission on Fibre input methodologies draft decision” (18 February 2020), para 4.1; Sapere “The cost of capital input methodologies for fibre” (report prepared for Chorus, 30 January 2020), para 99b and 129; Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 22.2-22.3, 207-209 and 219, and page 55.

The leverage results for the comparator sample

- 6.622 Consistent with our approach to estimating asset beta, our decision is to use the average of the two most recent five-year periods (ie, 2009-2014 and 2014-2019) when determining our leverage estimates. Averaging over these periods leads to leverage of 29%.
- 6.623 We note that as a result of our revised asset beta comparator sample decision at paragraph 6.411, our leverage estimate has changed from the draft decision of 31% and is now 29%. This is because the comparators in the asset beta sample have changed and the service-wide notional leverage is informed by the average leverage of the sample of comparator companies used to estimate asset beta.

Conclusion – leverage

- 6.624 We consider that where the use of the SBL-CAPM results in estimates of WACC which increase with leverage the model is displaying an anomaly. Given the differences can be large, we consider the anomaly should be addressed.
- 6.625 Conceptually the use of a non-zero debt beta is superior to the use of notional leverage, as this addresses the anomaly that increases in leverage can increase the cost of capital when using the CAPM framework. That is, the use of a non-zero debt beta can make the post-tax WACC estimate for regulated FFLAS invariant to leverage, as it should be.
- 6.626 However, there are practical difficulties in accurately estimating debt betas.
- 6.627 Accordingly, we will use a notional leverage informed by the average leverage of the sample of comparator companies used to estimate asset beta; our IM determination will not reflect the use of debt betas.
- 6.628 Our decision is that it is not appropriate to use actual leverage for any regulated provider. Also, using any leverage assumption other than that of the comparative firm sample for estimating the asset beta, would bias the estimate of the cost of capital.
- 6.629 The IM specifies a service-wide notional leverage of 29% when estimating the cost of capital for regulated providers.

Taxation

- 6.630 Our final decision remains unchanged from our draft decision that the corporate tax rate used in calculating the cost of capital should mirror the statutory tax rates. This will be 28% (until any change in the statutory corporate tax rate).

- 6.631 Our final decision remains unchanged from our draft decision that setting the investor tax rate to reflect the maximum prescribed investor rate under the PIE regime. The PIE regime enables individuals to limit tax liability on interest to a maximum of 28% (until any change to the maximum tax rate applicable to the PIE regime). Those rates would, therefore, be used in determining the investor tax rate.
- 6.632 Our final IM determination will allow for any future changes in tax rates to flow through to the calculation of the cost of capital.
- 6.633 Our final decision is that no account is taken of individual tax circumstances (accumulated tax losses, inability to use imputation credits) as in order to best give effect to the s 166(2) purposes, the cost of capital under Part 6 must be consistent with outcomes in workably competitive markets. This means the relevant cost of capital is that of an efficient industry cost of capital, rather than the cost of capital which reflects the tax situation of individual regulated providers or investors.
- 6.634 We received no submissions on this topic.

Why we set the corporate tax rate to 28%

- 6.635 The corporate tax rate is the statutory tax rate for business entities set by the New Zealand Government. The corporate tax rate enters the cost of capital estimation when estimating a post-tax cost of capital.
- 6.636 The statutory corporate tax rate is 28%. Our final decision is to therefore adopt this rate when estimating the cost of capital.
- 6.637 We will link the corporate tax rate to the statutory tax rate, thereby allowing for future possible corporate/statutory tax rate changes.

Why we set the investor tax rate to 28%

- 6.638 The investor tax rate is the average personal tax rate across all investors in the economy. This forms part of the SBL-CAPM equation.
- 6.639 This adjustment to the classical CAPM is incorporated to reflect the fact that the New Zealand tax regime permits the use of imputation tax credits (attached to dividend payments) to offset personal tax obligations and the fact that most investors are exempt from tax on capital gains, while interest income is not.
- 6.640 We consider that an assumed investor tax rate of 28% recognises that while there are a range of statutory tax rates for interest earned by individuals, depending upon their respective total taxable income, the utilisation of the PIE regime effectively enables individuals to limit their tax liability on interest earned to a maximum of 28%.

- 6.641 We will allow for changes in the investor tax rate for future possible changes to the PIE regime on an ongoing basis. Therefore, our final decision is to use an investor tax rate of 28%. We will allow for changes in the investor tax rate for future possible changes to the PIE regime on an ongoing basis.

Uplift to reflect asymmetric consequences of under-investment

Purpose of this section

- 6.642 This section explains the reasons for our final decision on the WACC percentile for regulated FFLAS in respect of PQ and ID regulation and in particular our decision not to apply an uplift to the mid-point estimate of the WACC.

Approach to considering an uplift to the WACC

Summary of our final decision

- 6.643 Having considered the evidence and weighed how best to give effect to the s 166 purposes of the Act, our final decision is to use the mid-point estimate of the WACC for the purposes of PQ regulation of regulated FFLAS. Our decision is not to apply an uplift to reflect the potential asymmetric consequences of under-investment as we consider that doing so would not best give effect to the purpose of Part 6 in s 162, nor promote competition for the long-term benefit of end-users of telecommunications markets.
- 6.644 For ID regulation of regulated FFLAS, our final decision is to publish the mid-point of the WACC and the standard error.

The rationale for providing an uplift

- 6.645 We cannot observe the WACC and we must estimate it. Nor do we know in retrospect what the WACC has been. Hence our mid-point estimate of the WACC is subject to uncertainty and mis-estimation risk.
- 6.646 An uplift is appropriate where the long-term costs to end-users from under-estimating the WACC are higher than from over-estimating the WACC.
- 6.646.1 Under-estimating the WACC can impact on incremental investment given the return afforded to investors will be less than required to compensate them for putting their capital at risk. The costs of this are somewhat offset by lower prices to end-users but we would expect this to be overall harmful to end-users and contrary to promoting the outcome in s 162(a) of the Act of regulated providers having incentives to innovate and invest.

- 6.646.2 Over-estimating the WACC can lead to over-investment and to end-users facing higher prices than they need to. This can be mitigated to some extent by the benefits flowing from that over-investment but we would

expect this to be overall harmful to end-users and contrary to promoting the outcome in s 162(d) of the Act of regulated providers being limited in their ability to extract excessive profits.

- 6.646.3 Given we do not know if we are under or over-estimating the WACC, the probability of these events needs to be weighed against the costs incurred from these events to best give effect to the purposes in s 166.
- 6.646.4 This is complicated by the causal chain of the extent to which mis-estimating the WACC impacts upon investment. This is not a straight-forward relationship as there are other factors which can drive investment decisions including competitive pressure and other aspects of the regulatory regime (such as quality standards).
- 6.646.5 Where the net costs of a WACC mis-estimation causing over-investment or higher returns are expected to be less than under-investment, it would be in the long-term benefit of end-users to allow an uplift to the WACC and would better balance the outcomes in s 162(a) and (d) of the Act.

Rationale for our final decision to use the mid-point WACC when setting a PQ path

- 6.647 In the factual context of regulated FFLAS, we do not consider that the potential benefits that could flow to end-users from a higher than mid-point WACC outweigh the costs they would face from the uplift. In particular:
 - 6.647.1 The gradual and visible expected consequences of under-investment in regulated FFLAS, the potential mitigation of the risk of any under-investment due to potential competition and asset stranding risk (albeit small), the availability of alternatives, and the relative newness of the regulated FFLAS networks mean that the expected scale of costs to end-users from under-investment appears an order of magnitude less than the costs they would face from a higher than mid-point WACC.
 - 6.647.2 If, over the course of time, under-investment or the risk of under-investment becomes apparent in terms of resilience or quality or expansion, we consider that we have more targeted tools which we would expect to be more cost effective for end-users than an uplift. We discuss these in paragraphs 6.835 to 6.841.
 - 6.647.3 We also note that we are required to review the IMs at least every 7 years. This provides the opportunity to examine the effects of our IMs decisions and to revisit them if we consider that other decisions would better promote the s 166 purposes.

- 6.648 Our final decision is to maintain our draft decision to use the mid-point WACC for PQ regulation.
- 6.649 In reaching our decision, we have considered submissions on our draft decision. In those submissions, a range of views were expressed by parties on whether a WACC uplift should be adopted. We discuss these submissions further in the following sections. However, in summary:
- 6.649.1 Submissions from LFCs, EDBs, and investors generally supported an uplift to the WACC, on the basis that this would be consistent with other sectors regulated under Part 4 of the Commerce Act. According to these submissions, a WACC uplift would incentivise further investment in network expansion, innovation, reliability, maintenance, and capacity upgrades.
 - 6.649.2 Submissions from retailers agreed with our draft decision not to apply a WACC uplift. According to these submissions, no substantive or justifiable evidence has been provided to support a WACC uplift.
- 6.650 Our decision not to apply an uplift to the mid-point WACC is based on our consideration of the same analytical framework that we have used for other regulated sectors, applied to the factual context of regulated FFLAS. For the reasons set out below, we do not consider that an uplift applied to PQ regulation of regulated FFLAS would best promote the s 162 purpose, nor would it best give effect to the matters set out in s166(2).

Rationale for our final decision to publish the mid-point WACC and standard error for the purposes of ID regulation

- 6.651 For the purposes of ID regulation, the link between the regulatory WACC we determine, which ID regulated providers subject only to ID regulation do not have to apply,⁹²¹ and investment is tenuous. In these circumstances we consider that it is appropriate for us to publish the mid-point WACC and the standard error of that estimate. This would allow interested persons to consider both our best estimate of the WACC and the range implicit in a standard error estimation, in examining the profitability of regulated providers.
- 6.652 Our final decision is to maintain our draft decision to publish the mid-point WACC and standard error for ID regulation.

⁹²¹ Section 191.

6.653 A number of parties commented on our draft decision to publish the mid-point WACC and standard error for the purposes of ID regulation of FFLAS.

6.653.1 Chorus agreed with the draft decision.⁹²²

6.653.2 Enable and Ultrafast submitted that the ID WACC should be specified within a range bounded by the 25th and 75th percentiles which can be derived from the WACC and standard error estimates.⁹²³

6.653.3 L1 Capital submitted that the approach proposed in the draft decision would penalise private capital subject to PQ regulation.⁹²⁴ According to L1 Capital, this is because regulated providers subject to ID only would have a wide discretion to identify what the appropriate WACC should be, while regulated providers subject to PQ regulation would not be allowed an uplift.

6.654 We consider that the publication of our estimates of the mid-point WACC and standard error is sufficient to calculate any percentile. If a regulated supplier that is subject to ID regulation considers that there should be a departure from the midpoint WACC, the supplier will be able to provide an explanation and disclose additional evidence to support such a departure.

Consideration of economic framework

6.655 Our economic framework explicitly recognises the potential asymmetric consequences of over and under-investment to end-users. The WACC uplift considerations implement that principle in respect of regulated FFLAS and represents our analysis of whether this should lead us to adjust our approach from the mid-point WACC.

Structure of this section

6.656 This section covers the following.

6.656.1 Framework for our decision on the WACC percentile.

6.656.2 The problem the WACC percentile is meant to address

6.656.3 Qualitative evidence of the case for an above mid-point WACC.

⁹²² Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraphs 220.2 and 246.4.

⁹²³ Enable Networks Ltd and Ultrafast Fibre Ltd “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 10.16.

⁹²⁴ L1 Capital “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 33.

- 6.656.4 Quantification of the case for an above mid-point WACC.
- 6.656.5 Other considerations which have arisen in considering the case for an above mid-point WACC.
- 6.656.6 Our view regarding the appropriate WACC percentile for PQ regulation.
- 6.656.7 Our view regarding the appropriate WACC percentile for ID regulation.

Framework for our decision on the WACC percentile

- 6.657 This section describes the framework we have used in making our decision on the appropriate WACC percentile.

Statutory context for our decision

- 6.658 As with all IM decisions, our decision on the appropriate WACC percentile must best give, or be likely to best give, effect to the purpose of Part 6 in s 162 and, where relevant, the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services in s 166. It must also promote the purpose of IMs specified in s 174.

The promotion of the purpose of Part 6: section 162 and section 166(2)(a)

- 6.659 The outcome promoted in s 162(a) of regulated providers having incentives to invest and the outcome promoted in s 162(d) of regulated providers being limited in their ability to extract excessive profits are particularly relevant when setting the WACC percentile and must be balanced.

- 6.660 In reaching our decision on the cost of capital IM, we aim to strike an appropriate balance between these elements to best give, or be likely to best give, effect to the purpose of Part 6 in s 162. We consider that the decision to apply the mid-point of the WACC for PQ and ID regulation strikes an appropriate balance between these elements. A percentile higher than the mid-point potentially compromises the interests of end-users in lower prices. However, we are also very aware of the longer-term benefit to end-users of incentivising the continued supply of reliable, efficient regulated FFLAS, as well as innovations in the supply of regulated FFLAS. We elaborate further on these reasons below.

The promotion of workable competition in telecommunications markets: section 166(2)(b)

- 6.661 We have considered whether the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services under s 166(2)(b) is a relevant consideration in our consideration of whether to apply an uplift to reflect the potential asymmetric consequences of under-investment. We consider that the promotion of workable competition in telecommunications markets for the long-term benefit of end-users

of telecommunications services is relevant for our consideration of whether to apply a WACC uplift. We consider that it is relevant as it is possible for an uplift to promote competition in telecommunications markets for the long-term benefit of end-users of telecommunications services, as outlined in paragraph 6.663.

6.662 Our expert panel noted:⁹²⁵

What happens in some jurisdictions, which may or may not be permitted by the NZ legislation, is for a regulator to tailor its price or revenue control approach in a market to the degree to which competition has or is expected to develop. In a control period when competition is non-existent or nascent, the control is set on a standard cost-based BBM, with no uplift. As competition takes hold and is prospectively competitive (ie, on the way to becoming ‘effective’) the control ceases to be cost-based and becomes a more generous ‘safeguard cap’. This less demanding price control may promote competitors’ interests if the price umbrella chosen by the incumbent – which competitors often have to beat – is raised. This approach to promoting entry also recognises the additional competitive risks which the regulated firm is running. The cap is removed when full deregulation occurs.

- 6.663 We note that the purpose of a WACC uplift we are considering here is to mitigate the risks of under-investment. We could view the above as suggesting, to the extent a higher price encourages competition, it mitigates the cost of a WACC uplift to end-users.
- 6.664 While it is possible that an uplift would promote competition in telecommunications markets, we consider that there may be consequences which are not for the long-term benefit of end-users of telecommunications services. A WACC uplift is a very blunt instrument to promote competition. An uplift would result in higher allowed maximum revenues, but what matters for new entry is prices, not revenues. Even with an uplift and higher revenues, regulated FFLAS would have an incentive to keep prices in potentially competitive markets low to deter entry and recover the higher allowed maximum revenues from non-competitive markets.
- 6.665 A WACC uplift may also make competing with the incumbent more difficult as it may incentivise the incumbent to sink costs in capacity which may deter entry especially when those costs can be recovered from the entire end-user base including those not served by that capacity. In particular, we note that where competition does emerge for a regulated FFLAS, we would consider recommending deregulation for that regulated FFLAS⁹²⁶ and this raises the prospect that we would remove the associated assets from the RAB so that a regulated provider cannot be assured that it can recoup those costs from across its entire end-user base.

⁹²⁵ Martin Cave & Ingo Vogelsang “Financial capital maintenance and its role in fibre regulation in New Zealand” (May 2019) paragraph 3.1.

⁹²⁶ Section 210.

6.666 We recognise in the above considerations that the details of the specific case matter.

6.667 We do not consider that applying an uplift would promote competition in telecommunications markets for the long-term benefit of end-users of telecommunications services.

The relevance of similar decisions undertaken by the Commission

- 6.668 A number of submissions on our draft decision refer to our decisions under Part 4 of the Commerce Act to allow for an uplift to the WACC for electricity lines businesses and gas pipeline businesses. According to these submissions, an uplift should also be applied to the WACC for regulated FFLAS in order to be consistent with our decisions under Part 4. For example, Chorus and Sapere (in a report prepared for Chorus) proposed that for the pre-implementation period, the 75th percentile WACC should be used, at least for the period from 2011 until 2014, at which point the 67th percentile WACC could be used.⁹²⁷ EDBs, as well as a number of investors, also pointed to consistency with other regulated utilities as support for a WACC uplift.⁹²⁸
- 6.669 Several other submissions refer to precedents where we have not applied a WACC uplift, such as in the case of airports and in the context of the Telecommunications Act.⁹²⁹ For example, 2degrees responded to submissions by EDBs:⁹³⁰

The submission points we and others have made, as well as the reasoning the Commission provided for a mid-point WACC, detail well why the WACC percentile for Chorus' fibre business should be set no higher than mid-point. With respect, the EDBs have not engaged with these telecommunications and fibre-specific points and instead have relied on high-level generic commentary from the Part 4 WACC percentile decisions.

6.670 According to 2degrees, a time-consistent decision would be to use the mid-point WACC for Chorus' fibre business.⁹³¹

6.671 Our decision to apply a WACC uplift for electricity lines businesses and gas pipeline businesses under Part 4 of the Commerce Act was made in a different industry

⁹²⁷ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraphs 148.4 and 149.

⁹²⁸ See for example Unison "Unison Submission on Draft Fibre IMs" (30 January 2020), page 3; ENA "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraphs 11-13; Investors Mutual "Submission on Fibre input methodologies – Draft decision" (22 January 2020), page 2; Cooper Investors "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 1.

⁹²⁹ 2degrees "Commerce Commission Fibre Input Methodologies Cross-submission" (17 February 2020), page 7; Vocus "Draft Fibre Input Methodologies Determination Cross-submission" (17 February 2020), paragraphs 1(viii), and 30-34.

⁹³⁰ 2degrees "Commerce Commission Fibre Input Methodologies Cross-submission" (17 February 2020), page 6.

⁹³¹ Ibid, page 7.

context.⁹³² Here, we must make a decision that we consider best gives, or is likely to best give, effect to the purposes in s 166(2), having regard to the factual context of regulated FFLAS which differs to electricity lines services and gas pipeline services.

6.672 We nonetheless recognise there are strong parallels. The outcomes promoted are very similar under s 52A of the Commerce Act 1986 to the outcomes promoted in s 162 of the Act. Our previous experiences from regulation in the energy, airports and telecommunications sectors can assist us in making a decision for the IMs relating to the supply of regulated FFLAS that best gives, or is likely to best give, effect to the purposes of s 166(2).

6.672.1 There have been various pieces of expert advice commissioned or received as part of these previous processes which are relevant to these considerations.⁹³³ We draw upon these in our analysis.

6.672.2 We developed a quantitative model to weigh the costs and benefits of a WACC uplift when considering these issues for energy companies and this was extended when we considered this issue as part of setting the prices for Chorus' UCLL and Chorus' UBA using the FPP. We consider that these are still potentially relevant to the current considerations.

6.672.3 Our body of knowledge of understanding has increased each time we have examined whether to allow a WACC uplift and we recognise that many submitters have also benefited and drawn upon previous learnings and observations on past decisions.

6.673 Industry context is also important. For example, as several submitters have noted, while we have allowed an uplift to the mid-point WACC for electricity lines businesses and gas pipeline businesses, these decisions have not automatically translated into a WACC uplift for airports. In our 2016 IM review, we noted that the value of complementary revenue streams associated with airport investment reduced the risk that such investment would be constrained by the use of the mid-point WACC.⁹³⁴

⁹³² Commerce Act 1986, s 52A.

⁹³³ For example, Professor Ingo Vogelsang "On the economic effects of allowing a WACC above the midpoint" (Report prepared for the Commerce Commission, 12 June 2014); Professor Ingo Vogelsang "Review of Oxera's Report, Input methodologies - Review of the '75th percentile' approach" (Report prepared for the Commerce Commission, 10 July 2014); Oxera "Is a WACC uplift appropriate for UCLL and UBA?" (June 2015); Oxera "Input methodologies, Review of the '75th percentile' approach" (Report Prepared for New Zealand Commerce Commission, 23 June 2014).

⁹³⁴ Commerce Commission "Input methodologies review decisions – Topic paper 6: WACC percentile for airports" (20 December 2016).

- 6.674 In addition to decisions under Part 4 of the Commerce Act, we have previously considered whether to apply a WACC uplift in our determination of TSLRIC prices for Chorus' UCLL and UBA services under the Telecommunications Act.⁹³⁵ In that determination, we noted that there were contextual differences in the regulation of UCLL and UBA services on the one hand, and PQ regulation of electricity and gas businesses on the other.⁹³⁶ These differences included the underlying regulatory model – with TSLRIC used for UCLL and UBA, and a RAB model for PQ regulation – as well as differences in the nature of the underlying services and the availability of substitutes. As a result of these differences, we concluded that although an uplift to the mid-point WACC had been applied to electricity lines and gas pipeline businesses, a WACC uplift for UCLL and UBA services was not justified.
- 6.675 As discussed further in the following sections, while there are some differences in the regulatory context of the TSLRIC pricing determination and that of setting a PQ path under Part 6 of the Act, there remain some similarities, for example in terms of the nature of the underlying fixed-line telecommunications services. The availability of substitutes, such as services delivered over wireless networks, is also relevant to the consideration of whether a WACC uplift might be required to mitigate any costs to end-users of under-investment.
- 6.676 In considering whether to apply a WACC uplift in the case of regulated FFLAS, we have used the same analytical framework that we have used for other regulated sectors, including those regulated under Part 4 of the Commerce Act as well as our determination of TSLRIC-based prices for Chorus' UCLL and UBA services under the Telecommunications Act. Chorus agreed that the framework for considering a WACC uplift properly focusses on the long-term asymmetric consequences for end-users of mis-estimation of the WACC.⁹³⁷
- 6.677 In applying this framework to regulated FFLAS, however, we have taken into account the specific circumstances of regulated FFLAS, rather than simply applying an uplift that was set in a different regulatory and commercial context. As a result of these differences, there will be limits to the parallels that can be drawn between our decisions. Ultimately, we must base our decision on the factual context of regulated FFLAS and whether it best gives, or is likely to best give, effect to the purposes of s 166(2). The fact that we did or did not choose a percentile above the mid-point in other sectors we regulate does not determine our choice here.
- 6.678 We further note the High Court's criticism of the original 2010 decisions made under Part 4 in the merits appeals of the IMs determined under Part 4 of the Commerce

⁹³⁵ Commerce Commission "Final pricing review determination for Chorus' unbundled copper local loop service" (15 December 2015).

⁹³⁶ Ibid, paragraphs 651-652.

⁹³⁷ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 224.

Act 1986. While this was in regard to considerations under Part 4, it is possible that the principles on which these criticisms were based are also relevant to the current considerations.

- 6.679 The High Court referred to a number of "tentative in-principle arguments" counter to our approach⁹³⁸, including scepticism regarding the case for a WACC substantially higher than the mid-point and our minimal reference to "loss function"⁹³⁹ analysis.⁹⁴⁰ The High Court concluded that it would expect its scepticism would be considered by us and that our consideration would include further analysis.⁹⁴¹
- 6.680 The High Court observed that the rationale for our approach in providing a WACC uplift came closest to having a clear basis, so far as the materials before it were concerned, in terms of a 'loss function' (or 'loss analysis').⁹⁴² A loss analysis approach seeks to quantitatively determine the costs and benefits to end-users of a higher or lower percentile.
- 6.681 We also draw upon previous expert advice we have received. In his 12 June 2014 paper, Professor Vogelsang considered the economic effects associated with adopting a WACC above the mid-point. Some of his conclusions are generic across sectors and we note his views that:⁹⁴³
 - 6.681.1 Any attempt at empirical investigation of the effects of setting the allowed WACC at specific percentiles will produce highly uncertain results that may suggest more precision than attainable. This is because there are some empirical relationships which can be crucial, but which we know little about (for example, the relationship between under-estimation of WACC and the resulting change in investment, and the change in investment and resulting change in reliability).
 - 6.681.2 In respect of reliability investment, if investment is currently at the optimum level, the marginal cost of additional investment is just balanced by the marginal benefits of an increase. This suggests that there will be no great net gain from additional investment, because the cost of investment (in terms of price increases for consumers) will be just as high as the

⁹³⁸ Wellington Airport & others v Commerce Commission [2013] NZHC 3289, at [1471].

⁹³⁹ In the current context, a loss function estimates the harm to consumers incurred by over-estimating and under-estimating the WACC and provides guidance as to where the expected harm would be minimised.

⁹⁴⁰ Wellington Airport & others v Commerce Commission [2013] NZHC 3289, at [1464] and [1486].

⁹⁴¹ Wellington Airport & others v Commerce Commission [2013] NZHC 3289, at 1486.

⁹⁴² Wellington Airport & others v Commerce Commission [2013] NZHC 3289, at [1464].

⁹⁴³ Professor Ingo Vogelsang "On the economic effects of allowing a WACC above the midpoint" (Report prepared for the Commerce Commission, 12 June 2014), pages 10-11.

benefits resulting from a reduction in the probability of outages.

Therefore, any argument for using the WACC percentile as a major tool to increase investment has to be based either on a large investment effect, or on some inherent deviation of investment from the welfare optimum.⁹⁴⁴

- 6.682 In summary, in considering whether a WACC uplift for regulated FFLAS would best give, or be likely to best give, effect to the purposes of s 166(2), we have applied an analytical framework that is consistent with the approach we have taken for other regulated sectors. We have applied that framework to the specific factual context of regulated FFLAS. The fact that we did or did not choose a percentile above the mid-point in other sectors we regulate does not determine our decision on the appropriate WACC percentile in the current case.

The starting point for our decision

- 6.683 The consideration of the WACC percentile asks the fundamental questions of:

6.683.1 Is there any reason to depart from the mid-point ie, the best parameter-based estimate we have of the cost of capital?

6.683.2 If so, what is the most appropriate percentile?

- 6.684 Our decision is that the starting point is the mid-point of the WACC which provides for an expectation of a normal return over time. As such, it adequately compensates investors for placing their capital at risk while providing regulated FFLAS at the expected cost to end-users.

- 6.685 We then examine whether evidence of asymmetric costs of under-investment should lead us to mitigate this risk through selecting a percentile of the WACC above the mid-point because it is to the long-term benefit of end-users.

- 6.686 We received a number of submissions which appear to imply a different starting point and that evidence to the contrary would be needed to apply the mid-point WACC.

⁹⁴⁴ Professor Vogelsang notes that steep marginal benefit and/or steep marginal cost curves for investment may provide justification for allowing a WACC above the mid-point. This is because under steep marginal benefit and/or marginal cost curves, there is a significant welfare effect from reducing investment below the optimal level (relative to the case of flat marginal benefit and/or marginal cost curves). Professor Ingo Vogelsang “On the economic effects of allowing a WACC above the midpoint” (Report prepared for the Commerce Commission, 12 June 2014), pages 5-6.

- 6.687 HoustonKemp has submitted that the choice of WACC percentile came down to a trade-off between dynamic and static efficiency, and that in telecommunications, the emphasis on dynamic efficiency is generally considered to be heightened.⁹⁴⁵

In the telecommunications industry, the emphasis on dynamic efficiency is generally considered to be heightened because under-investment in new innovations may result in a continuation of lower-value services for customers. In addition, customers are using more data (as more video content is streamed over platforms like Netflix), and have increasingly high, ‘anytime anywhere’ expectations for reliable, high speed internet.

- 6.688 Similarly, Chorus have stated that:⁹⁴⁶

The dynamic nature of the supply and demand for FFLAS distinguishes the circumstances of previous cost of capital percentile decisions in New Zealand...

On the other side of the ledger, the costs to consumers of over-estimating the cost of capital reflect static, allocative efficiency concerns.

- 6.689 The HoustonKemp and Chorus submissions seem to suggest that dynamic efficiencies are so important within telecommunications that our starting point should be a WACC percentile above the mid-point. They also refer back to an article written by Professor Dobbs for support. The Dobbs approach to uplifts was raised (and a quantitative model submitted) during our process to set the prices for Chorus Limited’s UCLL and Chorus’ UBA using the FPP. At that time, we commissioned Professor Dobbs to advise us and, within that process, he noted the case for an additional uplift was unclear and '*the devil is necessarily in the detail.*'⁹⁴⁷

- 6.690 HoustonKemp also quote the original 2010 input methodology reasons paper for electricity distribution and gas pipeline services on favouring dynamic efficiency.⁹⁴⁸

- 6.691 However, it was the reliance on general statements on the benefits of dynamic efficiencies rather than evidence which the High Court criticised during the Part 4 IM merits appeals.⁹⁴⁹

⁹⁴⁵ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page ii.

⁹⁴⁶ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views" (16 July 2019), paragraphs 167 - 168.

⁹⁴⁷ Ian M Dobbs, Welfare effects of UCLL and UBA uplift: comments on the Application of the Dobbs 2011 model, May 2015, paragraph 10.

⁹⁴⁸ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), pages 7 and 8.

⁹⁴⁹ Wellington International Airports Limit & Ors v Commerce Commission [2013] NZHC (December 2013), paragraphs [1462], [1470]-[1479].

6.692 Dynamic efficiency statements, in themselves, cannot justify an increase in the maximum revenues that may be recovered by a regulated provider which may be very substantive and inevitably raises issues about promoting the outcome in s 162(d) of regulated providers being limited in their ability to extract excessive profits. Rather, we have taken evidence on dynamic efficiency benefits into account in considering the asymmetric consequences on innovation from WACC mis-estimation to support an uplift. In doing so we recognise, were dynamic efficiencies to be lost, these can be substantive for end-users.

6.693 A similar line of argument has been submitted by Chorus with regard to the uplift to suppliers of electricity distribution services and gas distribution services:⁹⁵⁰

We did not see any evidence demonstrating that the asymmetric consequences of under-investment in electricity and gas distribution businesses are greater than the asymmetric consequences of under-investment in FFLAS, and we therefore see no reason to apply a higher cost of capital percentile to an electricity or gas distribution business than to FFLAS.

6.694 To the extent Chorus considers we need to demonstrate asymmetric consequences in another sector are greater than with regulated FFLAS, we disagree. We consider that our decisions need to best give, or be likely to best give, effect to the purpose of Part 6 in s 162 of the Act and, where relevant, the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services, as specified in s 166(2)(b) of the Act. We reject a starting point of the energy sector. Rather we need to examine the evidence for regulated FFLAS.

6.695 In this regard, we note that Sapere has also criticised the use of the mid-point WACC as the starting point. Sapere submitted that an uplift should be applied to reduce the probability of under-estimation of the true WACC, as is currently applied for gas pipelines and electricity distribution businesses.⁹⁵¹

6.696 However, Sapere provide no evidence that such an uplift is warranted in the context of regulated FFLAS. In particular, Sapere assert that reducing the probability of under-estimating the true WACC is justified, but they do not consider, either in a qualitative or quantitative sense, the consequences of allowing for a WACC uplift for regulated FFLAS.

⁹⁵⁰ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraph 205. See also Investors Mutual "Fibre Emerging Views submission" (16 July 2019), page 1, Paradice Investment Management "Fibre Emerging Views submission" (10 July 2019), page 2

⁹⁵¹ Sapere "The cost of capital input methodologies for fibre, prepared for Chorus" (27 January 2020), paragraphs 134-135.

- 6.697 Nonetheless we understand why parallels are drawn with our approach under Part 4. Consequently, we have explained why we reach a different conclusion for regulated FFLAS than we have for other regulated sectors.

The problem the WACC percentile is intended to address

- 6.698 As the true WACC cannot be observed, it must be estimated. This raises the risk of estimation error: our estimate of WACC could be too high or too low relative to the ‘true’ (but unobservable) WACC.
- 6.699 The consequences of setting WACC too high are different from the consequences of setting WACC too low.
- 6.700 If the allowed WACC is too high, the prices paid by end-users of regulated FFLAS will be too high. As a result:
- 6.700.1 regulated providers are likely to earn above-normal returns at the expense of end-users;
 - 6.700.2 due to the high returns they can earn on their investment, regulated providers may also invest more than necessary at the expense of end-users;
 - 6.700.3 as end-users pay for the investment regulated providers make, higher investment leads to higher prices. While there may be some benefit to end-users from this greater investment, the cost to end-users of this investment may be greater than the long-term benefits; and
 - 6.700.4 therefore, end-users may suffer a loss if the WACC is too high.
- 6.701 End-users may also suffer loss if the allowed WACC is too low.
- 6.701.1 If the WACC is too low, regulated providers may conclude they cannot expect to achieve investors’ required cost of capital and cannot therefore justify investment. In that case they are likely to struggle to attract capital.
 - 6.701.2 Over time, any such under-investment is likely to result in a decline in the quality of service provided to end-users (although this may be mitigated by constraints imposed by quality standards), which end-users may not be compensated for by the reduction in prices due to the lower value of the RAB. The reduction in quality could take many forms, including more frequent or longer disruption to services, slower connection times or slower services.

- 6.701.3 With the lower available returns on investment, regulated providers may also be less likely to innovate through investment, and the development and introduction of new services and/or technologies may be deferred.
- 6.702 Overall, end-users may suffer a loss if under-estimation of WACC results in regulated providers under-investing when the benefit of the investment foregone would exceed its cost.
- Why we consider increasing the WACC for asymmetric losses*
- 6.703 Given the potentially significant losses to end-users if our WACC estimate is wrong, we have considered the relative consequences of setting the WACC too high or too low. An uplift would be justified if end-users are rationally willing to pay to avoid the potential for harm to them from the increased risk of under-investment in the services they use.
- 6.704 In particular, we have considered:
- 6.704.1 how the expected losses from over-estimating WACC compare to the expected losses from under-estimating WACC; and
 - 6.704.2 whether the expected losses are broadly symmetric, so they offset each other (on an *ex-ante* basis), or whether they are different (asymmetric).
- 6.705 If the expected losses from the WACC being mis-estimated are symmetric, then we should choose the mid-point estimate of WACC. Doing so would provide regulated providers with an expectation that they will be able to earn a normal return. Doing so would also minimise the expected losses to end-users.
- 6.706 However, if the expected losses are asymmetric, we should choose a WACC percentile that reflects the asymmetry in the respective losses of over- or under-estimating WACC.
- 6.707 For example, if under-estimating WACC leads to materially greater losses to end-users than over-estimating it, we should increase the WACC estimate. Doing so will reduce the likelihood that the allowed WACC is set below the ‘true’ WACC and will reduce the likelihood that end-users incur significant costs as a result of under-investment.
- 6.708 Ideally, if there are asymmetric losses, we would like to adjust the WACC to ensure that the losses expected at the margin from under-estimating the WACC (given the probability of the WACC being under-estimated) are equal to the losses expected at the margin from over-estimating the WACC (given the probability of WACC being over-estimated).

The WACC uplift is only one of many regulatory factors that determine investment incentives

- 6.709 HoustonKemp has noted the direct link between WACC and incentives to invest under a BBM model. They also note that the wash-up provisions strengthen this link.⁹⁵²
- 6.710 While we agree, to some extent, we believe this over-simplifies a far more complex relationship between the WACC allowed under PQ and investment by regulated providers.
- 6.711 HoustonKemp distinguish our previous FPP decision within the telecommunications sector to use a mid-point WACC as related to the weaker link between incremental investment and the WACC.⁹⁵³ We agree, however, as we explained in the FPP decision as well as in our emerging views paper, this was not the only reason.⁹⁵⁴ Our reasoning included:⁹⁵⁵
 - for UCLL and UBA, the presence of substitutes (eg, mobile networks) reduces the impact on consumers of outages on the copper network. Further, outages are likely to be relatively localised, given that these services relate to the access network rather than the core network.
- 6.712 Our decision on the appropriate WACC percentile is intended to strike the right balance between the outcomes promoted in s 162(a) of regulated providers having incentives to innovate and to invest and s 162(d) of regulated providers being limited in their ability to extract excessive profits, and also promote workable competition as required under s 166(2)(b). We do this recognising there are other financial, as well as non-financial, factors from a range of sources which influence the investment decisions of regulated providers.
- 6.713 There are numerous factors influencing regulated providers' overall incentives to invest. The relative significance of these incentives varies from regulated provider to regulated provider, and over time. There are potentially complex interactions between investment, capital expenditure or other incentives under a price-quality path, and the uplift to WACC.

⁹⁵² Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 21. The wash-up provision is section 196.

⁹⁵³ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), 15 July 2019, page 6.

⁹⁵⁴ Commerce Commission, Fibre regulation emerging views: Technical Paper, May 2019, paragraph 548.

⁹⁵⁵ Commerce Commission, Cost of capital for the UCLL and UBA pricing reviews: Final Decision, December 2015, paragraph 221.2.

Qualitative evidence of the case for an above mid-point WACC

6.714 The majority of submissions that we have received on this topic have provided broadly qualitative rather than quantitative evidence. We recognise that such analysis can be useful, especially where it leads to a clear view as to whether or not there is a strong case for a percentile above the mid-point WACC.

6.715 As we have previously noted:⁹⁵⁶

6.715.1 regulated FFLAS are new networks;

6.715.2 alternative technologies are likely to mitigate the costs of under-investment; and

6.715.3 under-investment in regulated FFLAS is less likely to be 'hidden' allowing greater reliance on quality standards and enforcement.

6.716 We have received substantive and split submissions on this issue. The main evidence we received was from an expert report to Chorus by HoustonKemp.⁹⁵⁷ This was broadly supportive of an uplift but expressed scepticism of being able to quantify this and of elements of our previous quantifications. No view on the extent of uplift was provided but they noted they could carry out further work on this.

6.717 Chorus noted they consider that the benefits of an uplift outweigh the costs.⁹⁵⁸ They also note the fair bet uplift estimated by Oxera addresses the calculation of an uplift.⁹⁵⁹ Enable and Ultrafast also submitted that a WACC uplift was required for asset stranding risk.⁹⁶⁰ We address asset stranding separately in the asymmetric risk section.

6.718 The ENA were supportive of an uplift and thought the use of an uplift may have underpinned the financial business case for Chorus and the other LFCs.⁹⁶¹

⁹⁵⁶ Commerce Commission, Fibre regulation emerging views: Technical Paper, May 2019, paragraphs 552 and 553.

⁹⁵⁷ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019).

⁹⁵⁸ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraph 166.2

⁹⁵⁹ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraphs 235-240

⁹⁶⁰ Enable Networks and Ultrafast Fibre "Submission on NZCC fibre regulation emerging views: Technical paper" (16 July 2019), paragraph 5.6.

⁹⁶¹ Electricity Networks Association "Fibre IMs: emerging views" (16 July 2019), paragraph 13-20

6.719 Several investors submitted a 67th percentile was appropriate to incentivise maintenance and capacity upgrades and for reasons of regulatory consistency and predictability towards investors.⁹⁶²

6.720 Other parties submitted that no uplift for asymmetric costs was warranted or noted factors which may limit concerns about under-investment.⁹⁶³

Costs to end-users from an uplift for regulated FFLAS compared to other sectors we regulate

6.721 An uplift to revenue through the WACC is expensive for end-users because we are trying to mitigate the risk of disincentivising incremental investment (s 162(a) of the Act) through an increase in expected return across all investment.

6.722 HoustonKemp argued the cost of a WACC uplift is mitigated by the proportion of customers on the anchor price alongside the wash-up, MAR and geographic averaging of prices which combined mitigate the impact of an uplift.⁹⁶⁴ From a welfare perspective, we considered the following.

6.722.1 Despite the potential for a prescribed maximum price for anchor services,⁹⁶⁵ other end-users (not on a prescribed maximum price for anchor services) will feel the impact (and to a concentrated extent). HoustonKemp have submitted these are likely to be through targeting new higher value services. To the extent this is a form of price discrimination to target higher willingness to pay – it still represents an increase in average prices across end-users to their detriment unless those new services would not otherwise be forthcoming.

6.722.2 We agree that if a regulated provider subject to PQ can achieve the maximum revenues specified by us in a PQ determination without an uplift

⁹⁶² Black Crane Capital "Submission on Fibre Input Methodologies: Emerging Views Paper" (15 July 2019), page 4, Investors Mutual "Fibre Emerging Views submission" (16 July 2019), page 1, L1 Capital "Fibre Emerging Views submission" (16 July 2019), page 20, Paradice Investment Management "Fibre Emerging Views submission" (10 July 2019), Schroder Investment Management "Submission on Commerce Commission Emerging Views Paper" (15 July 2019), TelstraSuper "Fibre Emerging Views submission" (16 July 2019), Ubique Asset Management "Fibre Emerging Views submission" (16 July 2019)

⁹⁶³ Trustpower "Trustpower submission: Fibre regulation emerging views" (16 July 2019), paragraphs 3.4.12 to 3.4.13, Link Economics "Report on the Commerce Commission's Emerging Views on Fibre Regulation - Prepared for Trustpower Limited" (15 July 2019) section 5, Vocus Communications "Fibre regulation emerging views" (16 July 2019) paragraph 6, Vodafone "New regulatory framework for fibre: Cross-Submission on Fibre Regulation Emerging Views - Cost of Capital" (9 August 2019), pages 21 to 24, 2degrees "Cross-submission on Commerce Commission Fibre Regulation Emerging Views Paper" (31 July 2019), page 4, Nova "Cross-submission on Commerce Commission Fibre Regulation Emerging Views Paper" (31 July 2019), paragraph 17.

⁹⁶⁴ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 27.

⁹⁶⁵ Section 198(2)(d).

and cannot with an uplift, there may be an additional incentive at the margin to provide higher value regulated FFLAS. This combination of events would be relatively unlikely. We also think it more likely that the access seekers will have a better sense of what higher value services are currently being unmet and are well placed to make transparent where new regulated FFLAS services could be introduced.

- 6.722.3 It may be that the amounts are not recoverable over time, despite under recoveries being carried forward under a wash-up mechanism, because the revenue cannot be raised from end-users with or without the uplift and in this situation the uplift serves no purpose.
- 6.722.4 Consequently, we do not believe that this consideration has a material bearing on our considerations.
- 6.723 Trustpower Limited (Trustpower) submitted that a WACC uplift applied to the entire RAB (and losses) would be very expensive compared to the limited amount of ongoing investment required. They note the associated price rise would slow fibre uptake and would result in a large allocative efficiency loss.⁹⁶⁶
- 6.724 We agree that an uplift could be expensive for end-users and while, under certain circumstances this may be mitigated, our expectation is that under the most likely conditions where the uplift mitigates under-investment, it would do so at a significant cost to end-users. We provide some illustrative examples in the section below on the quantification of moving above the mid-point WACC.

The role of a WACC uplift differs across categories of investment

- 6.725 Given the likely and substantive cost to end-users from an uplift, this needs to be outweighed by the benefits from the lower probability of under-investment an uplift provides. This possible benefit is comprised of both the change in probability caused by the uplift and the cost of under-investment avoided, if it would otherwise occur.
- 6.726 There are different considerations across different categories of investment (such as to meet growth in connections, innovation, and quality) concerning the risk and cost of under-investment to end-users.
- 6.727 Chorus agreed that the relevant categories of investment for considering the case for a WACC uplift are network expansion, innovation, and reliability/resilience.⁹⁶⁷ A number of investors also submitted that a WACC uplift should be allowed to

⁹⁶⁶ Trustpower "Trustpower's cross submission on fibre regulation emerging views - Cost of capital and risk" (9 August 2019), page 3.

⁹⁶⁷ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 232.

incentivise investment in expansion of the fibre networks, capacity upgrades, and to prevent outages.⁹⁶⁸

6.728 Hence, in the following sections, we examine a number of broad categories of investment:

6.728.1 investment to meet growth in demand in connections;

6.728.2 investment in innovation; and

6.728.3 investment in reliability and quality.

6.729 We also discuss the specific case of whether a WACC uplift might have been justified during the pre-implementation period when the fibre networks were initially being deployed under the UFB programme.

6.730 As discussed below, we remain of the view that the qualitative case to justify a WACC uplift for regulated FFLAS on the basis of incentivising investment in these categories is weak.

6.731 We then go on to examine the quantitative evidence before us and whether that impacts our view.

Investment to meet growth in demand in connections

6.732 We recognise that expanding the network can be particularly beneficial to end-users who would not otherwise have access to regulated FFLAS. However, as discussed below, we consider that the number of such end-users are small, and the regime has other aspects which alleviate these potential concerns. On a qualitative basis we consider that the case for an uplift on these grounds is weak.

6.733 HoustonKemp have previously noted that approximately [
][COI] relates to growth. This seems to be both growth in capacity to meet demand and growth in network footprint.⁹⁶⁹ Chorus have also noted that expanding the network may offer significant benefits to consumers.⁹⁷⁰ HoustonKemp have noted there are adjacent areas to the fibre network currently

⁹⁶⁸ L1 Capital "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 25; Investors Mutual Ltd "Submission on Fibre input methodologies – Draft decision" (22 January 2020), page 2; Cooper Investors "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 1.

⁹⁶⁹ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 13

⁹⁷⁰ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraphs 196 to 201; Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 233.

served by VDSL2 where rollout of fibre will be delayed by us under-estimating the WACC.⁹⁷¹

- 6.734 We agree that the benefits to end-users from investment to meet demand growth are potentially large per user because there would be a significant welfare loss if demand for new connections went unmet. We also note, however, that the end-user benefits are only those associated with regulated FFLAS connectivity that are incremental to those available under legacy access networks (eg copper or HFC in brownfield areas) and/or competitively provided new ones (eg FWA in greenfield areas).
- 6.735 However, there are a range of factors which limit the need for a WACC uplift for investments to meet demand growth. These other factors include the following.
- 6.735.1 We note that the 'brownfield' areas not currently served by regulated FFLAS are likely to be a small proportion (13%) of telecommunication end-users. These are the most expensive to serve and we note the previous roll out to end-users required government subsidy. 99.8% of end-users will be covered by either fibre networks or rural broadband (or under the government's mobile black spots programme (MBSF))⁹⁷² It therefore seems likely the marginal net benefit to expansion is negative (or small in the best case scenarios), at least in the short term. However, the cost of an uplift would apply to all regulated FFLAS end-users on a regulated providers' network, making the costs of an uplift likely greater than the net benefits of expansion. We note here the advice from Professor Vogelsang we discuss in paragraph 6.681.2, it seems quite likely that the government subsidisation of fibre brought forward investment. In these circumstances the marginal benefits of investment may be less than cost.
- 6.735.2 The threat of competition may provide incentives for Chorus to invest to ensure it wins new customers and end-users (or losing customers and end-users on the copper network). Several analyst reports have noted the importance of Chorus converting customers and end-users to regulated FFLAS to protect against future potential competition from 5G (and more immediately from current fixed wireless).⁹⁷³
- 6.736 In our view, the strength of these other factors suggests that there is little need to apply a WACC uplift to mitigate the risk of regulated providers not undertaking investment to meet demand growth in new connections. Furthermore, we note that

⁹⁷¹ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 26.

⁹⁷² Media Release, Hon Kris Faafoi, 27 August 2019.

⁹⁷³ For example, see, UBS, Chorus: RABA-daba-doo; Upgrade to Buy, February 2019

more targeted tools are potentially available to provide incremental volume incentives which provide additional returns directly linked to increased volumes. We discuss this further from paragraph 6.835.

- 6.737 Chorus submitted that competition will not sufficiently incentivise network expansion into non-UFB areas. According to Chorus, the analyst reports referred to in paragraph above referred to “the conversion of customers to regulated FFLAS within planned UFB areas.”⁹⁷⁴
- 6.738 In its submission on our draft decision, L1 Capital said that investors are unlikely to support expansion of the UFB network footprint in the absence of a WACC uplift. L1 Capital referred to its previous submissions in which it cited estimates of the consumer surplus benefits from such an expansion.⁹⁷⁵ According to L1 Capital, the 13% of end-users located outside the UFB area is material, and the increase in utility available to those end-users from expanding the UFB is very high, as estimated by Sapere in 2017.
- 6.739 We further discuss Sapere’s estimate of the potential gain in consumer surplus from extending the UFB network footprint in the section below on the quantitative evidence for a WACC uplift. However, in relation to L1 Capital’s claims, we make a number of observations.
- 6.740 First, the gains in consumer surplus cited by L1 Capital are sourced from a Sapere report from 2017,⁹⁷⁶ which in turn refers to an Alcatel-Lucent study in 2012.⁹⁷⁷ The Alcatel-Lucent study analyses “the social and economic impacts for New Zealand of UFB and RBI, and the high-speed broadband applications that these networks will enable.” Alcatel-Lucent estimates that the benefits to New Zealand end-users of the high-speed broadband applications will amount to \$32.8 billion over 20 years.
- 6.741 The Alcatel-Lucent study refers to the benefits arising from the *UFB and RBI networks* in New Zealand. However, L1 Capital mistakenly attribute the estimated benefits only to the UFB, claiming they can be used as a proxy for the benefits forgone by end-users in non-UFB areas. As a result, L1 Capital’s reference to the \$32.8 billion estimate will overstate the benefits of further expanding the UFB.
- 6.742 Second, as noted in paragraph 6.735.1 above, non-UFB areas are the most expensive areas to serve, and a government subsidy has been required to improve the

⁹⁷⁴ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 233.1(d).

⁹⁷⁵ L1 Capital “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 25.

⁹⁷⁶ Sapere “Estimating the Wider Socio-economic Impacts of Ultra Fast Broadband for New Zealand” (August 2017), paragraph 25.

⁹⁷⁷ Alcatel-Lucent “Building the Benefits of Broadband. How New Zealand can increase the social & economic impacts of high-speed broadband” (2012).

broadband infrastructure in these areas. As a result of the RBI and Mobile Black Spot Fund (MBSF) programmes, the majority of end-users in these areas will have access to enhanced broadband connectivity. This is likely to reduce the incremental benefits from expanding fibre into non-UFB areas and are more likely to exceed the incremental cost.

6.743 Third, the threat of competition is likely to provide some ongoing incentive for Chorus to invest in fibre to ensure that end-users remain on its network (including end-users who are currently on its copper network). On the competitive threat that wireless technologies (including 5G) pose to copper access networks, we note the following.

6.743.1 In its submission on behalf of Chorus, Analysys Mason quotes MBIE's policy in relation to copper services post-2020, noting that should Chorus lose a copper customer to a competing network (such as fixed wireless broadband and mobile networks):⁹⁷⁸

... it will not recover any ongoing revenue for that customer through regulated prices. Chorus should therefore have an incentive to respond to the risk of copper line loss to these services by upgrading its network or lowering its prices. This approach should also provide an incentive for Chorus to expand its fibre footprint (subject to Commission efficiency tests) so that its copper network can be deregulated and replaced with fibre over time.

6.743.2 Chorus has previously referred to competition from wireless as a reason for declining copper revenues, and that it has seen "wireless customers returning as fibre rollout expands".⁹⁷⁹

6.744 We also note that our FPP decision in 2015 not to allow a WACC uplift for Chorus' UCLL and UBA services (which was based on a fibre modern equivalent asset) did not appear to deter investors and LFCs from participating in the 2017 expansion of the original UFB programme. Although investors may argue that they participated in the UFB2/2+ expansion on the expectation of a WACC uplift, the FPP decision was available at the time and set out our views on why an uplift was not justified in the context of a fibre deployment in New Zealand.

6.745 We therefore remain of the view that the case to justify a WACC uplift for regulated FFLAS on the basis of incentivising investment in network expansion is weak.

Investment in innovation

6.746 Investment in innovation is most likely to represent incremental upgrades to the capability of the network. Given the high performance of the network currently which is at the leading edge of fixed line networks worldwide, such incremental

⁹⁷⁸ Analysys Mason "Response to TERA paper on "over-recovery"" (24 January 2020), page 11.

⁹⁷⁹ Chorus "FY18 Full Year Result" (27 August 2018), slide 29.

benefits to end-users appear small in comparison to the potential high cost to end-users of a general uplift to the WACC. Innovation in the form of substantially new services at a network level, which by their nature would represent a significant benefit to end-users, appears unlikely.

- 6.747 HoustonKemp and Chorus have previously highlighted innovation as one of the costs of under-estimating the cost of capital. However, little evidence has been presented on this topic.⁹⁸⁰
- 6.748 Oxera's 2015-16 analysis for us as part of the FPP process emphasised the potential for bringing the deployment of new technologies forward in time.⁹⁸¹ We consider that this still appears the most likely way innovation would be affected by a WACC uplift. In our current context the regulated FFLAS network is relatively new, has been built ahead of demand and was built to recognised international technical standards (eg, GPON ITU-T G.984 et al), with Crown Fibre oversight.⁹⁸²
- 6.749 The fact the regulated FFLAS network has been built to recognised technical standards is particularly important in this context as those standards, developed to meet the requirements of network operators worldwide,⁹⁸³ allow for technology investments to occur incrementally and for the underlying optical distribution network (**ODN**) to be substantially re-used. The re-use of the underlying ODN by different generations of equipment is significant as it has been estimated the fibre infrastructure (ducts, cables and joints) can account for up to 80% of the total cost of a fibre-to-the-home (**FTTH**) deployment.⁹⁸⁴ This enables targeted incremental investment in technologies to occur where and when it is required. Further, the coexistence of copper services and regulated FFLAS also allows for the smooth migration of end-users between services (lower opex and capex), and the introduction of new higher value services that target new markets.⁹⁸⁵
- 6.750 HoustonKemp acknowledges as much in its report, noting "Chorus operates a fibre network using assets that are shared, and so may be used to provide a combination of regulated and unregulated services, and may be used to provide different services

⁹⁸⁰ For example, see Chorus, Submission in response to the Commerce Commission's fibre regulation emerging views, July 2019, paragraph 177.1.

⁹⁸¹ Oxera, "Is a WACC uplift appropriate for UCLL and UBA?" (June 2015).

⁹⁸² Chorus UFB2 NIPA – Schedule 3 (design and Build) – Execution Version, 7 Network specifications, page 27.

⁹⁸³ NG-PON2 Technology and Standards.

⁹⁸⁴ PON roadmap[invited], Journal of Optical Communications and Networking, Volume 9 January 2017, page A73.

⁹⁸⁵ GPON and TWDM-GPON in the context of the wholesale local access market. WIK Consulting, June 2016, page 13.

over time".⁹⁸⁶ As an illustration of how new services can be introduced, we note Chorus's announced trial of a XGS-PON (Symmetrical 10Gbits/sec) service, and the reported ease with which it has been able to upgrade its world-class fibre infrastructure to this new generation of technology.⁹⁸⁷

- 6.751 GPON is one of the most deployed FTTH technologies worldwide and is likely to address the needs of mass market residential end-users for some time. In this context, the additional benefits to end-users from further upgrades are lowered.⁹⁸⁸
- 6.752 We consider it is true that telecommunications are a more dynamic market than energy, even at the network level. The roll out of the fibre networks is one example of that. However, it is also true that the biggest dynamic changes appear to be driven from service providers such as Apple, Google, or Facebook, not Chorus or AT&T. Furthermore, the regulated FFLAS networks are the main upgrade foreseen for underlying fixed line networks around the world. It seems likely that further upgrades will be incremental.
- 6.753 There exists a technology roadmap for future incremental upgrades to allow network operators, such as Chorus, to innovate through incremental investment in newer technologies and services - as the market opportunity arises.
- 6.754 More importantly, innovation is driven by the prospect of earning additional rents or protecting existing rents from competition eroding these.⁹⁸⁹ On the other hand, a WACC uplift provides for additional rents irrespective of whether the investment is innovative or not. A similar point was made by the High Court in the Part 4 IMs merits appeal:⁹⁹⁰

If dynamic efficiencies are, as the Commission believes, most important, how exactly are higher expected returns supposed to stimulate them? Dynamic efficiency implies finding better ways to meet customer needs and adapting to changes in market circumstances. But necessity, not plenty, is the mother of innovation.

⁹⁸⁶ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 12.

⁹⁸⁷ <https://company.chorus.co.nz/chorus-supercharges-new-zealands-broadband-10gbps-trial>

⁹⁸⁸ WIK-Consult, "In response to the Commerce Commission's Fibre regulation emerging views: Technical Paper" July 2019, page 11.

⁹⁸⁹ The relationship is likely more complex, research indicates an inverted U curve relating to competition and innovation where too little or too much competition can harm innovation see Aghion, Bloom, Blundell, Griffith and Howitt, Competition and Innovation: and inverted-U relationship, The Quarterly Journal of Economics, Vol 120, No.2 (May, 2005), pp. 701-728

⁹⁹⁰ Wellington Airport & others v Commerce Commission [2013] NZHC 3289, at [1474]

- 6.755 Under PQ, innovation which reduces costs is naturally rewarded under a PQ path through incremental profits.⁹⁹¹ This can be particularly applicable to costs related to layer 2, where asset lives are shorter, and therefore the rewards from cost reduction can more reliably be retained by the firm (ie, they are more likely to happen within rather than between regulatory periods).
- 6.756 On a qualitative basis – the case for material asymmetric costs associated with under-investment in innovation, which could be avoided by a WACC uplift, appears weak. In addition, such delays are further mitigated by the potential for additional profits through outperforming the PQ path, or potentially losses from future competition and asset stranding risk which provides an existing incentive independent of any uplift.
- 6.757 A general WACC uplift on the other hand would impose substantial costs on end-users and provide for a greater return, whether or not, such innovation occurs or whether such upgrades are delayed or not.
- 6.758 During the FPP we also examined the links between a WACC uplift and innovation.⁹⁹² Innovation which is of most benefit to end-users is not incremental to existing services but new services such as when ADSL broadband was first introduced. For the FPP, we considered that the link between a WACC uplift and future investment in completely new innovative services was too tenuous to justify a certain and large increase in costs to end-users.
- 6.759 We consider that still, largely, holds true for regulated FFLAS with respect to truly new innovative services which may or may not be subject to regulation. We would note that the widespread deployment of ‘best in class’ fibre networks in New Zealand suggests that any future innovative service is less likely to be truly substantially different and to offer significant benefits to end-users above and beyond what is already currently available.
- 6.760 We maintain our view from the draft decision that the case for a WACC uplift to incentivise investment in innovation is weak, as submissions on the draft decision provided little evidence to change this view.

⁹⁹¹ PQ regulation is designed to provide regulated providers with a profit incentive to increase efficiency. When setting PQ paths, expenditure allowances are set for a regulatory period. If a regulated provider can outperform the expenditure allowance – for example, by discovering innovations which lower costs – it will be able to retain a proportion of those cost savings in the form of higher profits.

⁹⁹² Commerce Commission, Cost of capital for the UCLL and UBA pricing reviews, Final decision, December 2015, paragraphs 272 to 280.

- 6.761 In their submission on the draft decision, Chorus referred to investment in innovation providing significant benefits:⁹⁹³

Investment in innovation is not limited to incremental upgrades to the capability of the FFLAS network. Innovation can take many forms, some of which have not been thought of yet. The Commission should be careful not to make decisions that may lock-out the potential for future innovation as we move beyond the build phase.

- 6.762 Investors Mutual submitted that the WACC should be set at the 67th percentile to incentivise investment in maintenance and capacity upgrades over time.⁹⁹⁴
- 6.763 A number of other submissions agreed with our draft decision, arguing that no credible or sound evidence had been provided to justify a departure from the mid-point WACC.⁹⁹⁵
- 6.764 The recent emergence of new fibre services and statements by Chorus support our view that ongoing innovation is likely to be delivered through incremental upgrades to the capability of the regulated FFLAS networks.
- 6.765 Following its trial of XGS-PON services in parts of Auckland and Wellington in early 2019,⁹⁹⁶ Chorus announced the launch of its ‘Hyperfibre’ services in November 2019, with symmetric speed options of 2Gbps and 4Gbps initially, and an 8Gbps service in the future.⁹⁹⁷ In announcing these new services, Chorus said that “Hyperfibre is set to dramatically increase capacity and unlocks the ability to deliver exponential speeds on the Chorus fibre network of up to 10 Gbps.” According to Chorus, “Hyperfibre further illustrates the near limitless potential of our fibre network and can enable a new era of high-capacity creativity, innovation, and efficiency.” Chorus noted that as much of the infrastructure is already in place, Hyperfibre services will be offered on a region-by-region basis from February 2020, with availability across Chorus’ wider UFB1 network expected by September 2020.
- 6.766 As indicated by Chorus, having deployed the underlying fibre infrastructure, capacity can be significantly increased and made available relatively quickly. As we note above, and as Chorus noted when announcing its Hyperfibre service, such

⁹⁹³ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 233.2.

⁹⁹⁴ Investors Mutual Ltd “Submission on Fibre input methodologies – Draft decision” (22 January 2020), page 2.

⁹⁹⁵ See for example 2degrees “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 8; Vocus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 1(viii); 2degrees “Cross-submission on Fibre input methodologies – Draft decision” (17 February 2020), page 8.

⁹⁹⁶ See paragraph 6.750 above.

⁹⁹⁷ <https://company.chorus.co.nz/chorus-hyperfibre-set-redefine-fast-broadband-new-zealand>

enhancements in capacity can support innovation by other service providers or customers using fibre-based services.

- 6.767 As fibre services have continued to evolve, so has the capability of wireless technology. Spark started offering 5G fixed-wireless services in parts of central Otago and the West Coast in September 2019. In December 2019, Vodafone launched 5G services in parts of Auckland, Wellington, Christchurch, and Queenstown, based on its existing holdings of 3.5GHz spectrum. Further investment in 5G networks is expected to continue following the direct allocation of early access rights in the 3.5GHz spectrum band to the mobile operators.⁹⁹⁸
- 6.768 The increasing availability of 5G services is likely to provide some ongoing impetus for Chorus and the other LFCs to continue to invest in their fibre networks to head off the threat from fixed-wireless services in particular.⁹⁹⁹
- 6.769 Further competitive pressure for LFCs to innovate at the layer 2 level may also arise from the threat of unbundling, where an access seeker can take an unbundled layer 1 service and bypass the LFC's layer 2 network. In this regard, we note that the launch of Chorus' Hyperfibre towards the end of 2019 came just before Chorus and the other LFCs were required to offer unbundled access (PONFAS) to their fibre networks.
- 6.770 Having considered submissions on our draft decision, we remain of the view that the case for a WACC uplift to incentivise investment in innovation is weak. Developments that have occurred since our draft decision, such as the commercial launch of Chorus' Hyperfibre services as well as emergence of 5G wireless services, support our view that the LFCs will continue to face incentives to efficiently invest in innovation at the layer 2 level in the absence of a WACC uplift.

Investment in reliability and quality

- 6.771 We have previously noted that reliability was less of a concern for regulated FFLAS than in previous WACC uplift assessments, given:¹⁰⁰⁰
 - 6.771.1 regulated FFLAS are new networks;
 - 6.771.2 alternative technologies are likely to mitigate the costs; and

⁹⁹⁸ In May 2020, the Radio Spectrum Management (RSM) group in MBIE announced that the planned auction of 3.5GHz spectrum had been replaced by direct allocation. See <https://www.rsm.govt.nz/projects-and-auctions/current-projects/preparing-for-5g-in-new-zealand/>

⁹⁹⁹ https://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=12286145

¹⁰⁰⁰ Commerce Commission “Fibre regulation emerging views: Technical Paper” (21 May 2019), paragraphs 552-553.

- 6.771.3 under-investment in regulated FFLAS is less likely to be ‘hidden’ allowing greater reliance on quality standards and enforcement.
- 6.772 This is an issue which we have received substantive submissions and cross-submissions on, and we have considered the issues raised. It was also the issue where comparisons were drawn with our approach to regulating energy networks under Part 4.
- 6.773 We placed reliance on the newness of the regulated FFLAS networks in our emerging views paper, given this implies a network that is less likely to require substantive investment to maintain regulated FFLAS, and is already provided to a high-level of quality. As a result, we indicated that consequential further investment is likely to be relatively small and the prospect of under-investment leading to substantive costs to end-users is also likely to be relatively low.
- 6.774 In response to this the following submissions were received.
- 6.774.1 Chorus raised reliability as an ongoing concern of under-investment.¹⁰⁰¹ Chorus has submitted that “The Commission incorrectly assumes our fibre network is new and already providing significant quality of service to consumers...”¹⁰⁰² They emphasised the need for ongoing investment and that the network has re-used old assets, and some of the build has proved unsatisfactory requiring further investment.¹⁰⁰³
- 6.774.2 HoustonKemp and Chorus submitted that persistent under-investment may lead to local individual outages and the sum of all outages is likely to be substantial.¹⁰⁰⁴
- 6.774.3 The HoustonKemp report contained a table of fibre outage scenarios. The worst outcome appears to result from a [

][COI].¹⁰⁰⁵

¹⁰⁰¹ For example, see Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraph 177.1.

¹⁰⁰² Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraph 179.

¹⁰⁰³ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraph 179.4.

¹⁰⁰⁴ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraph 183 and Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 18.

¹⁰⁰⁵ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 19 -20.

- 6.775 These points mix questions of whether the current level of quality/resilience is correct with the impact of under-investment going forward. The provision of scenarios and individual examples does not go to the core question of whether there are substantive costs to end-users from forward-looking under-investment which outweigh the cost to end-users of an uplift. Some of these examples do not necessarily imply just investment is required but a mix of investment and operating expenses. For example, regulated providers may elect to employ redundant systems and undertake regular proactive maintenance in order to reduce the probability of a severe outage from occurring. Chorus was also obliged under the UFB Network Infrastructure Project Agreement (**NIPA**) to ensure "*all Network components are appropriately sized, with allowance for redundancy where specified by the design or the Requirements, or where needed to meet the Service Levels.*"¹⁰⁰⁶
- 6.776 Enable and Ultrafast drew the comparison with the uplift provided to electricity and gas distributors and transmission networks and state the asymmetric consequences are the same for regulated FFLAS.¹⁰⁰⁷ In particular they noted the continued growth in data usage at approximately 30% compound annual growth rate and the dependency of critical services on regulated FFLAS.
- 6.777 Link Economics Limited did not support an uplift and has noted that unlike the energy sector, regulated FFLAS is not of a 'on/off' nature and that traffic can be prioritised, limiting impacts of under-investment.¹⁰⁰⁸
- 6.778 We consider that ongoing investment to maintain and enhance quality of service is likely to be required. However, we remain of the belief that a relatively new and high quality regulated FFLAS network (as described above in paragraph 6.733) is less likely to suffer from substantive quality or resilience issues due to under-investment. The distinction we are drawing here is the very substantive difference to the considerations under Part 4 with respect to suppliers of electricity lines services and gas pipeline services, where concerns about wide spread outages from under-investment were at the forefront.¹⁰⁰⁹ As discussed in this section, there appears to be no parallel to the costs to end-users from large-scale power outages, in regulated FFLAS.

¹⁰⁰⁶ Chorus UFB2 NIPA – Schedule 3 (Design and Build), page 10.
<https://www.crowninfrastructure.govt.nz/wp-content/uploads/2011/12/Network-Infrastructure-Project-Agreement-NIPA-26-January-2017-redacte....pdf>

¹⁰⁰⁷ Enable and Ultrafast "Second cross-submission on NZCC Fibre Regulation Emerging Views: Technical Paper" August 2019, paragraph 5.4.

¹⁰⁰⁸ Link Economics "Report on the Commerce Commission's Emerging Views on Fibre Regulation" July 2019, page 9.

¹⁰⁰⁹ Commerce Commission, Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper, October 2014.

- 6.779 The cases for a WACC uplift for regulated FFLAS and under Part 4 are separate issues, and we consider that there are significant differences. If the energy network goes down, households cannot use broadband. However, the reverse does not necessarily hold true, suggesting a failure of the energy network imposes more economic costs on end-users than the regulated FFLAS network. The failure of an electricity network can also be wide-spread and sudden, and under-investment can accumulate over time in a way which is not obvious. The evidence before us is that regulated FFLAS networks are quite different. For example, as discussed further below,¹⁰¹⁰ telecommunications service quality can degrade as network congestion increases, and such congestion is easily observable by end-users and by network operators.
- 6.780 Such differences have been recognised by several submitters. In their submission on our draft decision, while Vector argued that a WACC uplift should be applied to FFLAS, Vector acknowledged that the costs of under-investment were likely to differ between electricity and FFLAS.¹⁰¹¹

We agree with the assessment that the social consequences for underinvestment in critical infrastructure such as electricity networks does have greater social cost than FFLAS.

- 6.781 2degrees' cross-submission also refers to these differences between electricity and telecommunications networks:¹⁰¹²

A number of electricity networks have made submissions pointing out industry-specific factors between electricity and telecommunications which justify either a higher uplift for electricity than in telecommunications or an uplift in electricity, with no uplift in telecommunications.

- 6.782 Where quality gradually and visibly degrades, other regulatory tools may be more effective and targeted to address these concerns. This is important given a WACC uplift is a blunt tool to address these potential issues. It provides regulated providers with more potential revenue whether or not quality improves, and provides incremental profit across the entire RAB, not just the investment which would address the concern.

- 6.782.1 HoustonKemp's report and Chorus have submitted on the visibility and impact of under-investment on quality of regulated FFLAS. They have noted the need to maintain a congestion-free network and meet demand requirements.

¹⁰¹⁰ See paragraph 6.798.

¹⁰¹¹ Vector "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 38.

¹⁰¹² 2degrees "Cross-submission on Fibre input methodologies draft decision" (17 February 2020), page 7.

6.782.2 HoustonKemp's report has, among other factors, drawn attention to the current level of resilience in route diversity. [

][COI]¹⁰¹³ They have also provided figures on outages [

][COI].¹⁰¹⁴

6.782.3 HoustonKemp's report further notes under-investment will be hidden for periodic software upgrades and deployment of new generation equipment. They note that such investments may improve efficiency, performance or lower costs. Chorus also submits that reliability concerns may be hidden and support the report from HoustonKemp.¹⁰¹⁵ They further note that failure to upgrade will increase the total cost of meeting bandwidth demand and increases the risks and costs of future upgrades. They have also noted that network electronics are now approaching end of life and without replacement they anticipate increasing fault rates.¹⁰¹⁶

6.782.4 Vodafone has submitted that resiliency is not hidden and is negotiated between LFCs and access seekers, and is measurable.¹⁰¹⁷

- 6.783 We agree that there are likely to be some areas of under-investment which are less visible, in particular where under-investment leads to maintaining the current level of quality where it is to the long-benefit of end-users that it increases, this can be difficult to determine. However, we doubt that a general uplift to the return against all historic investment is the best way to address this issue or that such issues are likely to generate the substantive costs to end-users required to justify the cost of such an uplift.
- 6.784 In submitting on our draft decision, Chorus argued that our preference for using quality standards rather than a WACC uplift to incentivise Chorus to invest in quality to reflect consumer demands is inconsistent with incentive-based regulation. Chorus also claimed that extensive quality requirements would place excessive constraints on Chorus, which may prevent Chorus from responding to consumer demands,

¹⁰¹³ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 15.

¹⁰¹⁴ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 15

¹⁰¹⁵ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraphs 193 to 195.

¹⁰¹⁶ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 16

¹⁰¹⁷ Vodafone "New regulatory framework for fibre: Cross-Submission on Fibre Regulation Emerging Views - Cost of Capital" (9 August 2019), page 23.

impede service differentiation, and place the principle of financial capital maintenance at risk.¹⁰¹⁸ Similarly, the ENA submitted that if prescriptive quality standards are set without the capex and opex levels required to deliver the programmes, this is likely to result in the regulated suppliers breaching their quality standards.¹⁰¹⁹

6.785 As discussed above, we remain of the view that a WACC uplift is a blunt tool to incentivise investment in quality at a level and in areas demanded by consumers. This is because a WACC uplift would apply to the entire RAB rather than to specific investment directed at meeting end user preferences for quality. On Chorus' criticisms on the use of quality standards to incentivise investment, we also note the following.

6.785.1 Quality standards can play an important role in incentive-based regulation, ensuring that suppliers focus on what is important to consumers and do not seek to increase profits by compromising quality.

6.785.2 We recognise that the link between quality standards and the expenditure components of a revenue cap (such as capex) is important, and should ideally ensure that regulated suppliers are able to meet the quality standards.

6.786 We are of the view that the evidence is more supportive of under-investment in regulated FFLAS being more likely to lead to a series of small outages which are likely to be visible, and more amenable to addressing through more targeted tools than a WACC uplift. This stands in contrast to the electricity sector where we were concerned about unexpected large-scale outages. For example, we agree where HoustonKemp states:¹⁰²⁰

Chorus has observed that patterns of use have changed, with customers actively using services for longer periods (hours, rather than minutes per day). At these heightened levels of use, customers are more likely to notice an outage. This has led to the revision of reliability standards.

6.787 The HoustonKemp report further noted that resilience comprises []**[COI]** of planned investment spend.¹⁰²¹ Even if that does represent a significant under-spend

¹⁰¹⁸ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraphs 305-306.

¹⁰¹⁹ ENA "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 8.

¹⁰²⁰ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 19.

¹⁰²¹ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 13

against what is needed, it suggests a WACC uplift is an expensive way to mitigate under-investment concerns here.

- 6.788 In the emerging views paper, we noted the availability of alternative services mitigates the harm from outages caused by any under-investment. Where regulated FFLAS suffer outages, end-users may still have access to alternatives and hence the cost to end-users from such outages are smaller.
- 6.788.1 HoustonKemp have submitted that mobile services are not closely substitutable for regulated FFLAS and are dependent on regulated FFLAS to function.¹⁰²² Similarly, Chorus have also emphasised the quality difference between regulated FFLAS and mobile alternatives and the degree that mobile services may require regulated FFLAS to maintain service.¹⁰²³
- 6.788.2 Spark have submitted that while mobile and wireless networks do rely on regulated FFLAS for backhaul, the DFAS links they are dependent on are less complex and less prone to failure. They note that mobile services can substitute for key areas such as emergency calling and email.¹⁰²⁴
- 6.789 We still consider mobile offers some protection. It is not always the case that an outage on part of the regulated FFLAS networks will take down the mobile networks. Nor are we suggesting that fixed wireless or mobile broadband services can fully replicate the regulated FFLAS network, rather that it can mitigate the cost of outages because some alternative services may be available.
- 6.790 Retail offers which are currently available in the market confirm our view that if a disruption to fibre-based services were to occur, the availability of wireless alternatives is likely to mitigate the costs experienced by end user. For example, the terms of Vodafone's retail broadband offer to its residential subscribers provides mobile back-up to ensure that its subscribers can continue to receive broadband and voice services in the event of a fault on the fibre connection:¹⁰²⁵

¹⁰²² Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), section 4.2.2

¹⁰²³ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraphs 180 to 192. See also Enable networks and Ultrafast Fibre "Second cross-submission on NZCC fibre regulation emerging views: Technical paper" (9 August 2019), paragraph 5.2

¹⁰²⁴ Spark "Fibre regulation emerging views: WACC - Cross-submission" (9 August 2019), paragraph 36 to 37.

¹⁰²⁵ Vodafone Residential Broadband Terms, clause 10.10, available at <https://www.vodafone.co.nz/legal/terms-conditions/residential-fixed/>

4G/3G mobile backup: If there is a temporary fault with your Fibre broadband connection, Broadband, voice and VodafoneTV services will be supported by our mobile network. The VodafoneTV quality may reduce due to lower speeds for mobile data.

- 6.791 The availability of a mobile backup service such as that offered by Vodafone does not reveal whether such services are regarded by end-users as being close economic substitutes for fibre-based services. However, by maintaining voice and broadband connectivity in the event of an interruption to the end user's fibre-based connection, these services will reduce the disruption and inconvenience experienced by the end user.
- 6.792 Vodafone also submitted that competition is a better mitigant of under-investment. In response to this point, HoustonKemp consider that competition will not incentivise Chorus to invest where the return is insufficient.¹⁰²⁶
- 6.793 We note, that to the degree competition is a credible threat, we would expect it to mitigate the risk of under-investment. The impact on regulated providers is that failure to invest in maintaining quality may not equate to just the loss of the (insufficient) return on that investment but the return on pre-existing investment as well due to the loss of customers.
- 6.794 An upgrade to the electronics may improve the quality of service on a connection. If that connection switches to an alternative network, it is the revenue associated with some of the electronics, trenching, ducts and fibre-optic cables which is lost. Given upgrades to the network are likely to represent a small increment to the existing investment, we would expect the later incentive to dominate where switching to alternative network services is plausible. This potentially reduces the probability of under-investment occurring.¹⁰²⁷
- 6.795 Chorus have also offered evidence that home-based telecommunications have the highest incidence of problems in a MBIE survey.¹⁰²⁸ This appears to relate to all fixed line telecommunication services and does not distinguish regulated FFLAS or

¹⁰²⁶ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 25.

¹⁰²⁷ [

][[COI]]

¹⁰²⁸ Chorus, Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019, July 2019, paragraph 204 referring to the Ministry of Business, Innovation and Employment, New Zealand consumer survey 2018 – summary of findings, May 2019, page 33.

whether problems reside in network services. We do not consider that industry wide quality reports through a consumer survey relating to current quality justifies significant uplifts in revenue for regulated FFLAS which would be received whether quality was improved or not.

- 6.796 In this regard, we note that Chorus itself has pointed to the differences in fault rates on its fibre network and copper network. For example, in its Annual Report 2019, Chorus stated that:¹⁰²⁹

For now, the substantial investment we've made in deploying the fibre network in recent years is already enhancing our future network resiliency for climate-related events. Fibre is less susceptible to water and lightning related faults than the cables and street-based electronics in the copper network.

- 6.797 In summary, we are not suggesting all reliability concerns will be visible and apparent. We are also not suggesting that outages cannot harm end-users, that availability of alternative services will eliminate all harm or competition will eliminate any prospect of under-investment. However, given the nature of a regulated FFLAS network, we are of the view, also expressed in our emerging views paper, that quality degradation is more apparent in telecommunications, and that other factors both mitigate the cost to end-users of outages and reduce the likelihood of under-investment leading to outages.
- 6.798 Unlike energy distribution and transmission, telecommunications degradation is more likely to be gradual and visible in the form of network congestion. Congestion and quality may degrade over time and this can be measured and observed by access seekers, end-users and under ID or other third-party measurement. Where degradation is occurring, it can be rectified in a timelier manner. Upgrading a regulated FFLAS modular network is easier and quicker than reinforcing an electricity grid. This allows for the greater potential for the use of more targeted tools which we discuss below from paragraph 6.835. Furthermore, the greater potential for competition in regulated FFLAS takes some weight off the regulatory regime to address these issues.
- 6.799 Overall, we remain of the view that the available qualitative evidence on resilience and quality concerns from under-investment suggests that a decision which does not use the mid-point estimate of the WACC would not best give, or be likely to best give, effect to the purposes of s 166.

Pre-implementation period

- 6.800 A number of submissions on the draft decision referred specifically to the use of a WACC uplift during the pre-implementation period, arguing that a WACC uplift

¹⁰²⁹ Chorus Annual Report 2019, page 14.

should be allowed based on regulatory decisions that we had made during this period (at either the 67th or 75th percentile). For example, Chorus submitted that the 75th percentile WACC should be used for the pre-implementation period, at least for the period from 2011 until 2014, at which point the 67th percentile WACC could be used.¹⁰³⁰

- 6.801 Other submitters argued that the mid-point WACC should be used for the pre-implementation period. For example, according to Vocus' cross-submission,¹⁰³¹

The Commission should set the WACC used to calculate financial losses at mid-point. It is unambiguous that a retrospective application of a WACC uplift would result in higher prices with zero benefits for consumers ...

- 6.802 We set out our views on the relevance of regulatory decisions made in different factual contexts at paragraphs 6.668 to 6.682 above.

- 6.803 We also note that any decision made now which applies retrospectively to the pre-implementation period will not influence investment decisions that have already been made. Those investment decisions were made in the context of contractual arrangements entered into by each of the LFCs and the Crown, which governed the design and build of the UFB networks, including the areas to be covered and timeframes for deployment. In this context, it is likely that the nature and timing of investment decisions relating to the deployment of the UFB networks would have been primarily driven by these contractual arrangements. It is unlikely that investors would have framed their decisions around participating in the UFB programme in terms of what an as-then undefined future regulatory regime might look like.

- 6.804 In addition, although a number of submitters claimed that our decision not to apply a WACC uplift is 'time-inconsistent' on the assumption that a different decision would have been taken had the UFB deployment not commenced,¹⁰³² the framework that we have applied has consistently been used to consider the case for a WACC uplift in other regulated sectors. To the extent that investors had formed expectations around a WACC uplift, those expectations should have taken into account the factual and commercial context of the UFB programme.¹⁰³³

¹⁰³⁰ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraphs 148.4 and 149.

¹⁰³¹ Vocus "Draft Fibre Input Methodologies Determination Cross-submission" (17 February 2020), paragraph 1(vii).

¹⁰³² For example, Unison "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 3.

¹⁰³³ We also note that although the Commission has applied WACC uplifts for specific sectors in other regulatory contexts, such uplifts have not been applied retrospectively.

- 6.805 In our view, the case for a WACC uplift to be applied during the pre-implementation period is not justified.

Quantification of the case for an above mid-point WACC

Why we examine quantitative evidence

- 6.806 When we have previously considered this question in other sectors, we have tried to quantify the potential asymmetry in costs.

- 6.807 HoustonKemp's report on our emerging views paper expressed the view that:¹⁰³⁴

...since the High Court judgment, the WACC percentile debate has shifted towards empirical, quantitative evidence – despite the increased appetite for quantitative rigour, the perceived rigour of an empirical evaluation remains heavily reliant on a range of estimates and assumptions.

- 6.808 We agree that any quantification will be limited in accuracy and we note that judgement is required. This does not detract from the guidance that some quantification can provide when applying judgement. Not least, even a sense of scale of the effects may provide a clear pointer to the likely balancing of these considerations.
- 6.809 In its submission on our draft decision, Chorus agreed that any attempt to quantify the asymmetric consequences of under-investment will be complex and difficult, producing results that will be imprecise. In Chorus' view, however, the qualitative case for a WACC uplift is compelling.¹⁰³⁵

The loss analysis model we prefer for quantification

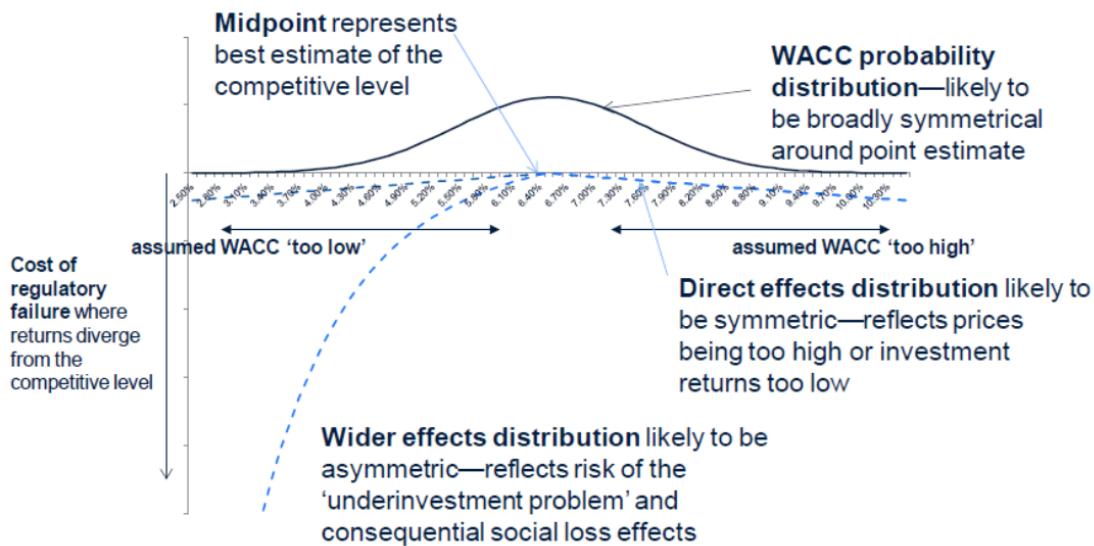
- 6.810 We have considered several models to estimate the costs and benefits to end-users from selecting a percentile above the mid-point. The one we view as being most useful is one developed for us by Oxera and is based on the loss analysis approach.
- 6.811 Oxera's general approach is to empirically estimate the expected losses to end-users from over- and under-estimating the true cost of capital for various percentiles of the WACC distribution, on an annualised basis.
- 6.812 Oxera's report is based on a 'probability of loss' approach, which it described as giving weight to the practical issues involved in estimating the parameters within the analysis.¹⁰³⁶ Oxera's framework is illustrated in Figure 6.8 below.

¹⁰³⁴ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 31.

¹⁰³⁵ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 225.

¹⁰³⁶ Oxera "Input methodologies, Review of the '75th percentile' approach" (Report Prepared for New Zealand Commerce Commission, 23 June 2014), page 66.

Figure 6.8 Illustration of Oxera's framework for the WACC percentile



Source: Oxera¹⁰³⁷

6.813 We commissioned Professor Vogelsang to review the model and he highlighted some limitations of this model, including that the model lacks an explicit treatment of the effects of investments on the RAB. In particular, the model does not address the annual cost savings to end-users, due to reduced investment in the future, that would result if a lower WACC is used. Instead, the model only addresses static consumer welfare effects of price changes (from a change in WACC) for a given RAB value.¹⁰³⁸

6.814 We consider that the model is the best analytical model available to us for considering the appropriate WACC percentile. It explicitly recognises the need to apply judgement, due to uncertainty regarding several key relationships which influence the appropriate WACC percentile. We recognise the model still has weaknesses.

6.814.1 It does not incorporate the possible effect of over-investment resulting from a higher WACC percentile, as recognised by Professor Vogelsang.

6.814.2 There are also other financial and non-financial incentives to maintain investment which are not directly incorporated into the model but can be reflected in the 'gap' assumption required to trigger under-investment.

¹⁰³⁷ Oxera "Input methodologies, Review of the '75th percentile' approach" (Report Prepared for New Zealand Commerce Commission, 23 June 2014), page 2.

¹⁰³⁸ Professor Ingo Vogelsang "Review of Oxera's Report, Input methodologies - Review of the '75th percentile' approach" (Report prepared for the Commerce Commission, 10 July 2014), page 7-8, paragraphs 14-18.

6.814.3 The model was developed to primarily focus on reliability investments.

6.815 Oxera developed a separate model to investigate the potential benefits to end-users resulting from the accelerated deployment of new telecommunications services in New Zealand. Oxera's approach quantifies the benefits of investment in an innovation occurring immediately, against a counterfactual of an innovation being deployed with a delay.¹⁰³⁹ In the current context, we note that any acceleration effects are likely to have been largely secured as a result of the government contribution under the UFB, with new technology in the form of FTTH being deployed ahead of demand. For the reasons laid out in paragraphs 6.746 to 6.759, we consider that any further 'acceleration effects' are less likely to be material for regulated FFLAS and consequently we do not consider this model further.

Use of consumer or total welfare when quantifying

6.816 The outcome of a loss analysis will differ depending on whether a total welfare or consumer welfare standard is used, or some weighting of the two.

6.816.1 A total welfare standard is consistent with an objective of maximising economic efficiency benefits for both consumers and producers, where any distributional benefits (or costs) associated with transfers of wealth between consumers and producers due to price changes are ignored.¹⁰⁴⁰

6.816.2 A consumer welfare standard is consistent with maximising benefits to consumers only, from both an efficiency and distributional standpoint. In particular, any financial benefit consumers might receive due to avoiding wealth transfers associated with producers setting higher prices in future will be taken into account.

6.817 In simple economic models, such as static supply and demand curve diagrams, 'total welfare' is often represented by 'total surplus' (ie, the combination of 'consumer surplus' and 'producer surplus').¹⁰⁴¹ In such static economic models, a total welfare

¹⁰³⁹ This approach reflects Oxera's assumption that the benefits of the innovation are likely to be realised regardless, but a WACC uplift could help bring these benefits forward.

¹⁰⁴⁰ Economic efficiency is typically identified in terms of three dimensions: allocative efficiency, productive efficiency, and dynamic efficiency. Allocative efficiency occurs when resources are allocated within the economy to the uses in which they have the highest value. Productive efficiency is present when producers use inputs in such a manner as to minimise costs, subject to technological constraints. Dynamic efficiency refers to decisions made over time and includes decisions relating to investment and/or innovation that can improve productivity as well as the range and quality of services.

¹⁰⁴¹ For example, Carlton, D.W. and Perloff, J.M., *Modern Industrial Organization*, Pearson Addison Wesley, Boston, 4th ed. 2005, Chapter 3. 'Consumer surplus' reflects the aggregate amount above the price paid that consumers would willingly spend, if necessary, to consume the units purchased of a service. In static supply and demand diagrams, consumer surplus is typically represented by the area below the demand curve and above the price paid. 'Producer surplus' reflects the aggregate difference between what suppliers are willing to supply the service for, and the price they receive. In static supply and

approach is consistent with maximising total surplus and with maximising static efficiency (ie, allocative and productive efficiency). Wealth transfers, which are represented by a transfer in surplus between consumers and producers, are ignored. If the static efficiency consequences of higher prices are small, a total welfare approach would therefore imply that the costs to consumers of higher prices are not very significant. A consumer welfare approach is consistent with maximising consumer surplus only, where both the distributional and efficiency effects on consumers of higher prices are taken into account.

- 6.818 Dynamic efficiency considerations are often ignored, or not represented well, in static models. Static models may therefore have significant shortcomings in informing our view on the appropriate WACC percentile for PQ in the context of the s 162 overall purpose—ie, promoting the long-term benefits of end-users.
- 6.819 The use of a consumer welfare approach in any loss analysis is in principle more consistent with the overriding purpose of promoting the long-term benefit of end-users than a total welfare approach. Section 162 does not restrict the relevant benefits to end-users of regulated providers being limited in their ability to extract excessive profits, and from associated lower prices, to the efficiency effects only. The direct financial benefits to end-users from those lower prices (ie, the distributional effects) are also relevant. As is noted above, these combined efficiency and distributional effects are typically represented in theoretical or analytical economic models by consumer surplus.
- 6.820 It is not necessarily inconsistent with s 162 to give some weight to producer surplus, as represented or quantified in such an economic model, because ‘consumer surplus’ is not directly equivalent to the ‘long-term benefit of end-users’. In particular, there are limitations to the extent to which any theoretical representation or analytical model of static consumer surplus can adequately take into account all the relevant efficiency and distributional benefits to end-users over the long-term, such as dynamic efficiency benefits from innovation or improvements to service quality, as well as all relevant inter-temporal effects.
- 6.821 Therefore, notwithstanding our view that using the consumer welfare standard is more consistent with an overall objective of the long-term benefit of end-users, it may be appropriate in practice to give some weight to producer surplus. However, this would only be to the extent producer surplus provides an appropriate proxy for some otherwise difficult to quantify (or unquantifiable) long-term (net) benefit to end-users, in particular as an indicator of the margin for error regarding incentives to invest.

demand diagrams, producer surplus is typically represented by the area above the supply curve and below the price paid.

Why we consider there needs to be a substantive mis-estimation to trigger under-investment

- 6.822 One of the assumptions we have used in modelling the costs and benefits of a WACC uplift is that there needs to be a 50 to 100 bps error before investment is affected. This followed expert advice we received from Oxera.

- 6.823 The original advice from Oxera stated.¹⁰⁴²

"One hypothesis is that the underinvestment problem will be caused by the **size of the differential between the actual and assumed WACC**. If some trigger is breached for this differential, investors will have the incentive to minimise investment."

In reality this trigger is unlikely to be as low as 0%, given the difficulty in measuring the WACC, which makes a very small difference both comparable to a 'rounding error' and small in the context of the potential for the WACC to be re-set over the life of the assets. However, the assumption is that, at the trigger level, investment will be minimised, and the risks associated with the underinvestment problem will arise in practice.

The '**probability of loss**' approach therefore assumes that the decision on the percentile should be informed by the probabilities of certain triggers being met, and it is for the Commission to decide which trigger to apply—ie, whether to assume that a 0.5%, 1% or 2% shortfall is the best assumption for the level at which the underinvestment problem is likely to arise."

- 6.824 The report from HoustonKemp for Chorus has challenged this practice.¹⁰⁴³

As such, we believe that Chorus would be cognisant of their true WACC and highly sensitive to any WACC differential. There does not appear to be any strong support for the presence or quantum of such a 'margin of error'.

- 6.825 Our decision is that a gap of between 50 and 100 bps is relevant when considering any quantified evidence. There are a number of reasons which suggest any such 'triggering' of under-investment (or over-investment) will not automatically follow any mis-estimation, no matter how small.

- 6.825.1 There are other financial and non-financial incentives to maintain investment. For example, investors in regulated assets are more likely to be investors with long-term horizons who value low-risk steady return investments and who are likely to want to see the value of the RAB maintained over time (ie, steady investment).

- 6.825.2 For 'small' gaps, inherent uncertainty affects investors as well as regulators – we do not consider that it is credible, for example, that an apparent 5 bps gap between the regulator's and investors assessment of WACC will

¹⁰⁴² Oxera, Input Methodologies: Review of the '75th Percentile' approach, June 2014, Box 6.1

¹⁰⁴³ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 34.

lead investors to assume the regulator has mis-estimated the WACC, provided an insufficient return and consequently reduce investment.

- 6.825.3 It is mis-estimation over time that matters most for investors in assets with long-lives. This covers multiple WACC estimations. The gap needs to be sufficient to signal a significant divergence of views before medium or long-term investment plans will be pulled back.
 - 6.825.4 Other factors are also relevant, for example, for specified airport services regulated under Part 4, we noted that under-investment would affect complementary revenue streams. HoustonKemp have noted there is no material complementary revenue streams for Chorus. However, with regulated FFLAS services there is a greater prospect of competition and potentially asset stranding risk. Under-investment would, to some extent, increase the likelihood of these substantial adverse events from Chorus' perspective occurring. We consider that investors would be highly aware of these, as we discuss in the asymmetric risk section, investment analysts and credit rating agencies clearly are.
- 6.826 We agree with HoustonKemp that there is little evidence underpinning the quantum of this.¹⁰⁴⁴ The issue was also recognised by Ingo Vogelsang (see paragraph 6.681) and we have always recognised this is an area of uncertainty and ultimately this is a matter of judgement. Although we acknowledge that there are limitations of the available empirical evidence, in our view this is primarily due to uncertainty regarding several key relationships which affect the optimal WACC percentile. For example, it is extremely difficult to empirically estimate the link between the WACC allowed by the regulator, the level of investment undertaken by regulated suppliers, and how this affects quality of service.
- 6.827 In our judgement we continue to consider that a material gap needs to exist to trigger under-investment and that while there is no precise number, zero is not credible and 50 to 100 bps is our best estimate. This is ultimately used to guide the quantification of cost and benefits which forms part of our overall judgement on whether to consider applying a percentile above the mid-point in determining the WACC to apply to regulated FFLAS.
- 6.828 We note, based on the evidence before us, even if we were to adopt HoustonKemp's preferred approach, our conclusions would not change given our quantification evidence which we discuss in the following sections.

¹⁰⁴⁴ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 33.

Our view of the quantitative evidence in assessing a WACC above the mid-point estimate

6.829 HoustonKemp have offered no quantification of the case for a WACC uplift. Most of the evidence they offered was related to resilience and the number of end-users affected by elements of network failure. One investor, L1 Capital, has referred to a Sapere report estimating the overall benefits of UFB to be in the region of \$32.8 billion over 20 years.¹⁰⁴⁵ According to L1 Capital, Sapere's estimate represents the cost to consumers of the UFB not occurring, and that as 13% of users will remain outside the UFB, the consumer surplus benefits of extending the UFB to reach these users will be \$4.3 billion ($13\% \times \32.8 billion) over 20 years.¹⁰⁴⁶

6.830 However, we note the following.

6.830.1 The estimates in the Sapere report do not represent the cost of under-investment, rather they represent the cost if UFB had not occurred at all.

6.830.2 In fact, the \$32.8 billion estimate used by L1 Capital is sourced from an Alcatel-Lucent study on the benefits arising from both the UFB and RBI networks in New Zealand. As noted earlier, L1 Capital mistakenly attribute the estimated benefits only to the UFB, claiming they can be used as a proxy for the benefits forgone by end-users in non-UFB areas.

6.830.3 The Sapere report does estimate annual consumer surplus per household of \$225.24 growing to \$1,341.96 if uptake is 100%. If we took [] [COI] households the [] [COI] noted by HoustonKemp¹⁰⁴⁷ and assumed disconnection for one month rather than [] [COI] noted by HoustonKemp – the implied annual cost of such an outage would be [] [COI] in 2016 prices.

6.830.4 This then needs to be adjusted to reflect how an uplift changes the likelihood of such an event occurring. For example, if an uplift reduces the chances of under-estimating WACC from 40% to 35% then it is only 5% of those benefits (avoided under-investment costs) which are relevant which reduces the benefits to [] [COI].¹⁰⁴⁸

¹⁰⁴⁵ Sapere, Estimating the wider socio-economic impacts of ultra fast broadband for New Zealand, August 2017 (A report prepared for Chorus). As we note below, the \$32.8 billion figure is referred to by Sapere but came from an Alcatel Lucent 2012 study.

¹⁰⁴⁶ L1 Capital "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 25.

¹⁰⁴⁷ HoustonKemp refer to users not households however we believe they mean households because they state an ONT failure would affect a single user, at page 19.

¹⁰⁴⁸ This is a simplification of the required calculation, which balances the incremental change in probability combined with the estimated costs of under-investment end-users avoid to the incremental change in cost to end-users through a higher WACC.

- 6.830.5 This is a very imprecise figure, but the order of scale is small compared to the cost of an uplift despite relatively generous assumptions on the scale of the outage.
- 6.830.6 Even if it was doubled and at the high end (100% uptake) the benefits appear modest to the uplift cost. For example, a 20 bps uplift on a \$3bn to \$6bn RAB¹⁰⁴⁹ would cost end-users \$6m - \$12m per year excluding additional tax effects. The 67th percentile, which has been advocated by some submitters, potentially increases the WACC by far more.¹⁰⁵⁰
- 6.831 We have run our uplift loss analysis model in reverse to test what the annual costs of under-investment to end-users would need to be to justify the 55th percentile (as a modest but material uplift). This is dependent on the size of the RAB and WACC parameters (which impacts the cost of an uplift to end-users and change in probability of under-investment) and provides an order of magnitude only.

Table 6.14 Costs to end-users of under-investment caused by mis-estimation of the WACC (\$m p.a.)

Estimated RAB	Costs to end-users of under-investment caused by mis-estimation of the WACC (\$m p.a.)	
	50 bps gap required to trigger under-investment	100bps gap required to trigger under-investment
\$3 billion	156	203
\$4 billion	207	271
\$5 billion	259	339
\$6 billion	311	406

Note to table: These costs are non-probability adjusted

- 6.832 As the table illustrates, the estimates of benefits we have seen are of an order of magnitude lower than those indicated through the model as being required. Even given the limitations inherent within the loss analysis model, the order of magnitude is clearly not supportive of an uplift.

Our view on other considerations

Option to implement a split cost of capital

- 6.833 Trustpower has previously submitted that it does not support a WACC uplift but has also submitted that if one is provided it should not be applied to the determination

¹⁰⁴⁹ The RAB is yet to be determined as such these figures are purely illustrative.

¹⁰⁵⁰ These basis point figures will depend on our intended WACC determination and are provided to give a sense of scale.

of the financial losses, required under s 177(2) of the Act. We note this is akin to a split cost of capital system.

- 6.834 We set out our views on the case for a WACC uplift in the calculation of the financial losses in the section above on the pre-implementation period.

There are tools other than a WACC uplift that can address under-investment concerns

- 6.835 Spark's cross-submission on our emerging views noted that an uplift is very expensive as it applies to sunk as well as new investment.¹⁰⁵¹ They noted that alternative tools such as quality incentives and unbundling were better tools to mitigate under-investment. Link Economics also highlighted quality incentives as a means to mitigate under-investment risk.¹⁰⁵² 2degrees agreed that quality regulation is a more targeted tool to mitigate the risk of under-investment and to address end-user expectations around quality.¹⁰⁵³

- 6.836 This was also an issue highlighted by our expert panel.¹⁰⁵⁴

...before departing from the FCM principle, it is important first to ask if adjusting the expected NPV is the most direct and the best way of redressing what would otherwise be a regulatory failure. If this is not the case, the regulator could probably avoid unintended consequences and find it easier to calibrate the intervention by going to the proximate cause than by adjusting the NPV.

- 6.837 We agree that more targeted tools are potentially available. At this stage we do not consider that such tools are needed but over time, to the extent concerns on under-investment prove substantive, a WACC uplift appears a comparatively expensive way to address these concerns for end-users.

- 6.837.1 If concerns of under-investment relate to quality, a quality incentive scheme, if effective, would be far more targeted in providing incremental returns to investment which enhances quality. Vodafone has also submitted that Asset Management Plan reporting is a potential mitigation for under-investment affecting reliability. We would agree this is another tool available to us.¹⁰⁵⁵ We consider that the declaration of a point-to-

¹⁰⁵¹ Spark, Fibre regulation emerging views: WACC Cross-submission, August 2019, page 21

¹⁰⁵² Link Economics, Report on the Commerce Commission's Emerging Views on Fibre Regulation, page 9.

¹⁰⁵³ 2degrees "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 8.

¹⁰⁵⁴ Martin Cave & Ingo Vogelsang, Financial capital maintenance and its role in fibre regulation in New Zealand, May 21, 2019, paragraph 4.4.

¹⁰⁵⁵ Section 188(2)(h) specifically references the disclosure of asset management plans as a possible information disclosure requirement.

multipoint layer 1 services supplied to end-users' premises or building as an unbundled fibre service may also be a tool to enhance quality.¹⁰⁵⁶

- 6.837.2 If concerns relate to connecting end-users, we could consider a financial volume incentive. Similar to the quality incentive scheme, this could be symmetric and therefore, the expectation would be it is cost neutral to end-users. Such a scheme would still provide an incremental financial incentive to such investment.
 - 6.837.3 If concerns relate more generally to innovation, it is harder to target tools to this issue. Regulation is generally in opposition to incentives to innovate given the main spur to innovation is the expected upside which regulation will tend to cap (with or without an uplift). The incentive to outperform the revenue path can also incentivise innovations which reduce costs. We also note that a regulated supplier that is subject to PQ regulation can include innovation-related projects as part of its proposed expenditure plan. We can then determine whether to allow the supplier to recover the costs of such projects from consumers.
- 6.838 Enable and Ultrafast have submitted that quality standards may not provide sufficient protection particularly while quality regulation is being developed.¹⁰⁵⁷ We agree that the ability to rely on quality regulation is lesser at the start of the regime. We note that we discussed similar issues during the amendments to the IMs relating to the supply of electricity lines services and gas pipeline services, determined under Part 4, in respect of the WACC percentile.¹⁰⁵⁸
- 6.839 Overall, we are not proposing to introduce such schemes now, although that is not a decision necessarily required for setting the IM. Rather we note we have alternative, and, more targeted, tools available, if these potential issues prove to be problems.
- 6.840 The ENA rejected the use of quality standards as a tool to address the potential costs to end-users from under-investment due to WACC mis-estimation: “We are very surprised that the Commission would suggest that it can use the threat of penalties

¹⁰⁵⁶ Under s 209(2)(c), we may review whether a point-to-multipoint layer 1 service supplied to end-users' premises or building should be declared under s 229(1) to be an “unbundled fibre service” and, if so, how the matters set out in s 229(2) should be prescribed (if at all). If, as result of our review, we recommend to the Minister that a point-to-multipoint layer 1 service should be declared as an “unbundled fibre service”, the Governor-General may, by Order in Council, declare that service as an “unbundled fibre service”. Under s 200, a regulated provider who is subject to PQ regulation must provide an unbundled fibre service which has been declared.

¹⁰⁵⁷ See Enable and Ultrafast “Second cross-submission on NZCC fibre regulation emerging views: technical paper” (August 2019), paragraph 5.8.

¹⁰⁵⁸ Commerce Commission, Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: reasons paper, October 2014, paragraphs 3.30 to 3.35.

to coerce investment, as a means for compensating for a WACC that Chorus considers too low.”¹⁰⁵⁹

- 6.841 We note that the use of alternative tools was raised during the amendments to the IMs relating to the supply of electricity lines services and gas pipeline services in respect of the WACC percentile.¹⁰⁶⁰
- 6.842 We consider that the mid-point of the WACC best gives effect to the s 166(2) purposes by striking an appropriate balance between the outcomes in s 162(a) and (d) of the Act and also promotes workable competition as required under s 166(2)(b). It provides an expectation of a normal return while limiting excessive profits. Where the wider regime provides for opex and capex allowances under a PQ path to fund a level of enforceable quality standards, we do not consider that the threat of pecuniary penalties ‘coerces’ investment. Rather, we consider that it would hold regulated providers to account for the end-user’s money they are receiving. However, we also recognise that such schemes are not meant to allow for a WACC that is set too low. In the first instance, we aim for the best estimate of the WACC. We also recognise, in certain circumstances, selecting a percentile higher than the mid-point of the WACC may also best give effect to the s 166(2) purposes.

Relevance of the predictability of the regime

- 6.843 Submissions from LFCs, investors, and other parties including the ENA, have argued that not providing a WACC uplift may harm predictability.¹⁰⁶¹ For example, according to the ENA’s submission on our draft decision:¹⁰⁶²

if the Commission fails to continue with the WACC uplift – investors in LFCs could rightly feel that there has been a significant and un-expected break in the regulatory settings that undermines overall confidence in regulatory stability and predictability.

- 6.844 Where we provide an uplift to the cost of capital, it is important that investors do not consider it is transient as the investments they will be making in reliance on it can be long lived.
- 6.845 However, the decision as to whether an initial uplift best gives, or is likely to best give, effect to the s 166(2) purposes cannot be justified on the basis of potential investor expectations that might arise from the regulatory settings in other sectors.

¹⁰⁵⁹ ENA, Fibre IMs: emerging views, Submission to the Commerce Commission, July 2019, paragraph 18 and Chorus, Cross-submission in response to the Commerce Commission’s fibre regulation emerging views, July 2019, paragraphs 75 to 75.3.

¹⁰⁶⁰ Commerce Commission, Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: reasons paper, October 2014, paragraphs 3.33 to 3.35.

¹⁰⁶¹ For example, see Paradice Investment Management “Fibre Emerging Views submission” (10 July 2019)

¹⁰⁶² ENA “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 13.

As we have discussed earlier in this section, we have taken into account the specific circumstances of regulated FFLAS, rather than simply applying an uplift that was set in a different regulatory and commercial context.¹⁰⁶³ We have applied a consistent framework for considering the asymmetric consequences of under-investment, while also having regard to the specific factual and contextual circumstances around investment in regulated FFLAS. This provides a degree of predictability, both for regulated fibre service providers, as well as for other regulated suppliers, on our likely approach when determining whether a WACC uplift might be justified.

- 6.846 This also means that our view that a WACC uplift is not justified for FFLAS does not necessarily imply that a WACC uplift should not be applied in other sectors such as electricity. The case for any departure from the mid-point WACC will need to be considered within the specific factual, commercial, and regulatory context of the sector concerned.
- 6.847 We also note that in the telecommunications sector as part of setting the prices for Chorus' UCLL and Chorus' UBA using the FPP, no uplift was provided.¹⁰⁶⁴ That decision would not preclude us from reaching a different decision here if we consider that adopting a WACC uplift would best give, or is likely to best give, effect to the s 166(2) purposes.

Relevance of international comparators

- 6.848 There have been numerous comparisons in submissions to higher WACCs set by other regulators internationally both as part of submissions and in external communications. For example:¹⁰⁶⁵

In Europe, regulators have acknowledged the risk involved in fibre investment by allowing a rate of return higher than that allowed for legacy network investment.
- 6.849 In many instances it is not clear whether these points relate to any specific parameter of the cost of capital or are a general point about the overall level. Largely they are not directly related to a WACC uplift for reasons of asymmetric costs of under-investment.
- 6.850 Nonetheless, we note that the choices by other regulators are inherently specific to those regimes and the detail behind them and the overall regulatory regime matters. Many European regulators have been considering how to incentivise incumbent legacy network providers to upgrade their networks to fibre to the premises (**FTTP**).

¹⁰⁶³ See the discussion from paragraph 6.668 above.

¹⁰⁶⁴ Commerce Commission, Cost of capital for the UCLL and UBA pricing reviews, December 2015.

¹⁰⁶⁵ For example, Black Crane Capital comparing Netlink NBN and Singapore, Ubique Asset Management submission comparing Slovenia, Luxembourg, Denmark, Czech Republic, Belgium and the UK.

This muddies the water given the very different model of a publicly subsidised network rollout in New Zealand. This was recognised by Oxera in their report for Chorus.¹⁰⁶⁶

- 6.851 While we are aware that other regulators in Europe have also explicitly provided a ‘premium’ above weighted average cost of capital (WACC) for investments in next generation access (NGA) networks, the rationale for such premiums is not always founded on robust economic and finance principles, sometimes conflating the need to provide an uplift to compensate for risk with the objective of incentivising investment.
- 6.852 HoustonKemp have provided a quote from a previous Chair of the AER supporting the concept of asymmetry of economic costs.¹⁰⁶⁷ We note, to the extent it is relevant at all, the most recent AER cost of capital guidelines has rejected a WACC uplift following customer consultation.¹⁰⁶⁸
- 6.853 The UK Regulator’s Network (**UKRN**) recently commissioned an expert report on estimating the cost of capital for price controls. It covered the issue of a WACC uplift (or aiming up of the Regulatory Allowed Return (**RAR**)) and noted:¹⁰⁶⁹

...although we make a case for aiming up, that case is, in our view, a limited one: more limited than appears to have been adopted in a number of past regulatory decisions in the UK. The case is limited further by the extent to which regulators are able to incentivise investment through means other than setting the RAR.

- 6.854 They also noted that under incentive regulation there also exists an ‘informational wedge’, that regulated firms will benefit financially from the asymmetry of information between the firm and the regulator. We understand that Ofgem’s May 2019 methodology decision on cost of capital provides for no uplift but does allow for a downlift to the cost of equity on the basis of this informational wedge. This is likely to represent the quite different situation in the UK with evidence of systematic outperformance of price paths.¹⁰⁷⁰ In July 2020, Ofgem released for consultation its RIIO-2 Draft Determinations, in which it applied the cost of capital methodologies

¹⁰⁶⁶ Oxera, Compensation for asymmetric type 2 risks: applying the fair bet principle in the new regulatory framework for fibre in New Zealand: Prepared for Chorus, 15 July 2019, page 1. We note we have separately assessed the potential for a ‘fair bet’ approach under asset stranding considerations.

¹⁰⁶⁷ Houston Kemp “WACC uplift - asymmetric consequences of under-investment - A report for Chorus” (15 July 2019), page 27.

¹⁰⁶⁸ AER, Rate of return instrument: Explanatory statement, December 2018, Section 13.5.

¹⁰⁶⁹ Wright, Bruns, Mason, Pickford and Hewitt “Estimating the Cost of capital for implementation of prices controls by UK Regulators” (March 2018).

¹⁰⁷⁰ Ofgem, RIIO-2 Sector Specific Methodology Decision – Finance, 24 May 2019.

from May 2019.¹⁰⁷¹ In the finance annex to its Draft Determinations, Ofgem noted that it had not been convinced of the need to ‘aim up’ the allowed rate of return.¹⁰⁷²

- 6.855 In their submission on our draft decision, L1 Capital submitted that a number of overseas regulators had allowed a higher WACC to be applied to next-generation access (NGA) networks (including fibre-to-the-home) compared to legacy copper networks. These included a number of decisions by national regulators from within the European Union (the Netherlands, Italy, and Slovenia).¹⁰⁷³
- 6.856 Where a higher WACC has been allowed for NGA networks compared to legacy copper networks, the reasons may be unrelated to asymmetric costs of under-investment. For example, in the case of the Netherlands, part of the justification for a higher WACC for the fibre networks was that such networks are built in anticipation or ahead of demand.¹⁰⁷⁴ More generally, the deployment of NGA networks in Europe has been taking place in a quite different context, where State aid rules limit the role of public investment in such networks.¹⁰⁷⁵ As noted at paragraph 6.850 above, this is very different from the publicly subsidised network rollout in New Zealand, where the risks associated with deploying fibre in an immature market were mitigated by the government directing funding towards communal infrastructure ahead of demand.¹⁰⁷⁶
- 6.857 Overall, given limited evidence has been provided other than noting the size of WACCs set, we consider that such comparisons offer little evidence in support of or against a WACC uplift in the context of this decision.

Our decision regarding the appropriate WACC percentile for PQ regulation

- 6.858 Our decision on the appropriate WACC percentile requires us to make a decision that we consider best gives, or is likely to best give, effect to the purposes in s 166(2). This involves an exercise of judgement in light of the evidence available to us. Given the evidence before us, we consider that adopting the mid-point of the WACC for the purposes of setting PQ paths for regulated FFLAS will best give effect to the purposes of s 166(2).
- 6.859 Our final decision is not to apply an uplift to reflect asymmetric consequences of under-investment as we consider that doing so, would not best give effect to the

¹⁰⁷¹ Ofgem, RIIO-2 Draft Determinations – Core Document, 9 July 2020, paragraph 2.15.

¹⁰⁷² Ofgem, RIIO-2 Draft Determinations – Finance Annex, 9 July 2020, paragraph 3.145.

¹⁰⁷³ L1 Capital “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 31.

¹⁰⁷⁴ Brattle Group “The WACC for KPN and FttH – prepared for ACM” (1 July 2015), page 3.

¹⁰⁷⁵ See for example European Commission “EU Guidelines for the application of State aid rules in relation to the rapid deployment of broadband networks (2013/C 25/01)” (26 January 2013).

¹⁰⁷⁶ Ministry of Economic Development “Ultra-Fast Broadband Initiative Invitation to Participate in Partner Selection Process” (October 2009). See in particular Appendix 2, paragraphs 1-8.

purpose of Part 6 in s 162, nor promote competition for the long-term benefit of end-users of telecommunications markets.

- 6.860 Consequently, we have not needed to consider what percentile other than the mid-point is appropriate.
- 6.861 Our final decision is to maintain our draft decision to use the mid-point WACC for PQ regulation. We received a range of views on this issue in submissions, and as discussed in the sections above, we have considered the views and the evidence contained in submissions on whether there is a case to depart from the mid-point estimate of WACC for PQ regulation of FFLAS. For the reasons set out above, we do not consider that a departure from the mid-point WACC is justified.

Our decision regarding the appropriate WACC percentile for ID regulation

- 6.862 We also need to decide whether an uplift applies to ID WACC. We have several options.
 - 6.862.1 One, no uplift is required for ID and we publish the mid-point.
 - 6.862.2 Two, we publish the mid-point and the range from the 25th percentile to the 75th percentile.¹⁰⁷⁷
 - 6.862.3 Three, we publish the mid-point and standard error and then require regulated providers to disclose which WACC they use and explain any differences as part of ID requirements.¹⁰⁷⁸
- 6.863 Enable and Ultrafast have submitted that an ID WACC will affect their incentives to invest and have submitted the 67th percentile should be adopted.¹⁰⁷⁹
- 6.864 Given ID regulation does not directly constrain prices of regulated providers, the link between the regulatory determined WACC and investment is weaker. In any event given that we consider that the mid-point WACC best balances the outcomes in s 162(a) and (d) for the purposes of PQ paths, we see no case for an uplift for the purposes of ID regulation.
- 6.865 We still need to determine whether or not, when we determine WACCs for ID purposes, we also determine the range from the 25th percentile to the 75th percentile (or some other range). To ensure that sufficient information is readily

¹⁰⁷⁷ We note that this is our approach for suppliers of electricity distribution services exempt from PQ regulation under s 54G(2) of the Commerce Act 1986.

¹⁰⁷⁸ We note that this approach is used for specified airport services under Part 4. See Commerce Commission “Airport Services Information Disclosure Determination 2010”, as amended, clause 2.5(1)(i).

¹⁰⁷⁹ Enable and Ultrafast, Second cross-submission on NZCC Fibre Regulation Emerging Views: Technical Paper, August 2019, paragraphs 5.6 to 5.7.

available to interested persons to assess whether the purpose of Part 6 of the Act is being met, as specified in the purpose of ID regulation in s 186, we intend for our WACC determinations to provide sufficient guidance for the purposes of *ex-post* analysis of profitability for interested persons.

6.866 Our final decision is that disclosing the mid-point and standard error of that estimate is enough and consistent with the s 162 purpose. The reasons for this are outlined below.

- 6.866.1 If we determine a specific percentile, there would be a danger that the upper bound of such a range would be interpreted as either a safe-harbour (if profitability is below that bound) or evidence of excessive profits (if profitability is shown to be above that bound). This has been our experience for specified airport services regulated under Part 4 with respect to *ex-ante* profitability analysis.¹⁰⁸⁰ We consider that neither is necessarily correct and such focal points are not helpful and do not best give effect to the purpose of Part 6 in s 162.
- 6.866.2 Any percentile can be calculated from the mid-point and standard error. This allows interested persons to draw their own conclusions on the profitability of regulated providers in combination with wider evidence such as increases or decreases in quality of service. This includes the 75th percentile or whatever percentile they consider is relevant for the question they are examining.
- 6.866.3 Regulated providers subject only to ID regulation can choose to disclose any additional evidence at any time including any ‘uplift’ they consider should be applied in the event of PQ being imposed through future regulations under s 226 and any evidence they have to support this. It is further possible that such information could be required as part of the information disclosure requirements of regulated providers.

6.867 We have not identified any reasons why the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services, as specified in s 166(2)(b), is relevant for our decisions on the publication of the mid-point and standard error estimates of WACC for ID.

6.868 Our final decision is to maintain our draft decision to publish the mid-point WACC and standard error for ID regulation.

¹⁰⁸⁰ Commerce Commission, Input Methodologies review decisions: Topic paper 6: WACC percentile for airports, December 2016, paragraph 26.

- 6.869 In their submission on our draft decision, Enable and Ultrafast support a move above the 50th percentile WACC as compensation for asset stranding risk. We address the risk of asset stranding separately later in this chapter.
- 6.870 Enable and Ultrafast also submitted that the ID WACC should be specified within a range bounded by the 25th and 75th percentiles which can be derived from the WACC and standard error estimates.¹⁰⁸¹
- 6.871 Chorus agreed with the draft decision to publish the mid-point WACC and the standard error.¹⁰⁸²
- 6.872 L1 Capital submitted that the approach proposed in the draft decision would penalise private capital subject to PQ regulation.¹⁰⁸³ According to L1 Capital, this is because regulated providers subject to ID only would have a wide discretion to identify what the appropriate WACC should be, while regulated providers subject to PQ regulation would not be allowed an uplift.
- 6.873 As we noted in our draft decision, publication of our estimates of the mid-point WACC and standard error is sufficient to calculate any percentile. If a regulated supplier who is subject to ID regulation considers that there should be a departure from the midpoint WACC, the supplier will be able to provide an explanation and disclose additional evidence to support such a departure.

Approach to estimating the standard error

- 6.874 This section discusses our approach to determining the estimate of the standard error of the WACC.
- 6.875 We estimate the standard error by estimating and combining individual parameters' standard error. We specify the standard error in the cost of capital IM for PQ and ID to enable regulated providers and other interested parties to estimate a cost of capital distribution.
- 6.876 We have also specified the standard error in the cost of capital IM for PQ, although we note that we use the mid-point estimate of the WACC when setting a price-quality path.
- 6.877 We have specified a standard error of the WACC of 0.0131.

¹⁰⁸¹ Enable Networks Ltd and Ultrafast Fibre Ltd "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 10.16.

¹⁰⁸² Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraphs 220.2 and 246.4.

¹⁰⁸³ L1 Capital "Submission on Fibre input methodologies – Draft decision" (30 January 2020), page 33.

Purpose of determining the standard error

- 6.878 The cost of capital must be estimated as it cannot be observed directly. This raises the prospect of error since it is not possible to know the true cost of capital.
- 6.879 Typically, we are faced with uncertainty when we estimate the cost of capital. These uncertainties include the statistical error surrounding individual parameter estimates.
- 6.880 The cost of capital IM accounts for uncertainties in parameter estimates by specifying the standard error which allows for the estimation of the cost of capital at a particular percentile.
- 6.881 Regulated providers and interested parties can use the standard error estimate to derive a distribution for the cost of capital (rather than a single point estimate) to reflect the possible spread between estimated and true parameter values underlying the cost of capital.¹⁰⁸⁴
- 6.882 When we calculated the benefits that would be required to justify a WACC higher than the mid-point estimate for PQ regulation, we used the estimate of the standard error. These results are summarised in Table 6.14 in the discussion of a potential WACC uplift. As discussed in paragraphs 6.858 to 6.861 of our decision on the WACC uplift, we do not consider that the benefits are sufficient to justify a WACC higher than the mid-point.
- 6.883 We note that our methodology for calculating the standard error of the WACC for PQ and ID regulation under Part 6 is similar to our approach for the cost of capital IMs relating to the supply of electricity lines services, gas pipeline services and specified airport services, determined under Part 4 of the Commerce Act 1986 in 2010.¹⁰⁸⁵

Our methodology to calculate the standard error

- 6.884 We considered four possible approaches to allow for the estimation of a cost of capital range. These are:

6.884.1 **Method 1:** The simple analytical approach: this would consist of deciding on an upper and lower bound for each parameter based on judgement and then combining them.

6.884.2 **Method 2:** The standard analytical approach: this consists of estimating the statistical measure of uncertainty for each parameter (the standard

¹⁰⁸⁴ As previously noted, the cost of capital is unobservable so our estimate will include some uncertainty around our estimates of the different WACC parameters.

¹⁰⁸⁵ See Commerce Commission “Input methodologies review decision: Topic Paper 4: Cost of capital issues” (December 2016), p. 149 – 157.

error) which contains significant uncertainty and combining them to derive the overall standard error or level of uncertainty.

6.884.3 **Method 3:** The complex simulation approach: for each parameter that the IM considers has uncertainty associated with it, we would randomly select a large number of values drawn from a distribution with the same underlying statistical properties (in terms of mean and standard error) as the parameter itself through complex statistical methods. An example of this approach is the Monte Carlo method.¹⁰⁸⁶

6.884.4 **Method 4:** The simple simulation approach. The IM's parameter estimates and standard errors are to be combined to generate a large number of random cost of capital estimates. The statistical properties of this random sample of cost of capital estimates can then be used to derive an overall measure of uncertainty of that estimate, which in turn informs the cost of capital range at any given percentile.

6.885 We consider that the standard analytical approach is most appropriate. Chorus agreed with our decision to provide for the estimation of a WACC range by combining individual parameters' standard error to determine the standard error of the cost of capital.¹⁰⁸⁷

6.886 The advantages of the standard analytical approach are that it is not as heavily reliant on judgment as method 1 whilst we consider that simulation methods 3 or 4 offer no significant additional benefit in terms of accuracy. Simulation techniques are typically used to evaluate a system in which variables interact in a complex manner and so analytical solutions are not feasible. In this case, we consider that an analytical solution is available.

6.887 For the standard analytical approach, we use the following formula to estimate the standard error of the WACC by combining the standard error estimates of each parameter:

$$\sqrt{\text{var}(\hat{TAMRP})\text{var}(\hat{B}_a) + E^2(\hat{TAMRP})\text{var}(\hat{B}_a) + E^2(\hat{B}_a)\text{var}(\hat{TAMRP}) + (1-T_c)^2[\text{var}(\hat{p})\text{var}(\hat{L}) + E^2(\hat{p})\text{var}(\hat{L}) + E^2(\hat{L})\text{var}(\hat{p})]}$$

where:

¹⁰⁸⁶ The Monte Carlo method is a technique used to estimate the probability distribution of a random variable. Monte Carlo simulates the results of a model or process by accumulating average results of thousands of random draws from the probability distributions of input variables. Monte Carlo simulation can accommodate complex stochastic process.

¹⁰⁸⁷ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), para 234.1.

$\text{var}(\hat{TAMRP})$ is the square of the standard error of the estimated tax-adjusted market risk premium;

$E^2(\hat{TAMRP})$ is the square of the estimated tax-adjusted market risk premium;

$\text{var}(\hat{B}_a)$ is the square of the standard error of the asset beta;

$E^2(\hat{B}_a)$ is the square of the estimated asset beta;

T_c is the corporate tax rate;

$\text{var}(\hat{p})$ is the square of the standard error of the debt premium;

$E^2(\hat{p})$ is the square of the estimated debt premium;

$\text{var}(\hat{L})$ is the square of the standard error of leverage; and

$E^2(\hat{L})$ is the square of leverage.

6.888 This leaves how we estimate the standard error for each individual parameter. We have split this into those parameters where our decision is to set the standard error at zero, and those where a positive standard error estimate is appropriate.

The parameters where we have set the standard error at zero

6.889 Our decision is that for leverage, corporate tax, debt issuance costs and risk-free rate, no standard error is required for the reasons we lay out below.

6.889.1 **Leverage:** to address the leverage anomaly we use a notional leverage estimate based on the average leverage of the comparator firms. This is to make the cost of capital invariant to changes in leverage. Applying a standard error would undermine this purpose.

6.889.2 **Risk-free rate:** the risk-free rate does vary, however, there is only very small uncertainty as to what the rate actually is at any one time. Variations in the risk-free rate can be hedged by regulated providers. That is, a standard error associated with the risk-free rate plays no purpose in measuring uncertainty associated with our estimate in the cost of capital.

6.889.3 Debt issuance costs and tax rates: we consider that these parameters are not associated with significant levels of uncertainty.

6.890 This leaves the standard errors associated with estimating the debt premium, TAMRP and asset beta. We need to decide how best to estimate the standard errors of these parameters.

Our approach to the standard error for the asset beta

6.891 When we estimate the asset beta of the regulated providers from our comparator sample set, this provides a standard error associated with the asset beta estimate. From these standard errors and the individual estimates of the asset betas of comparators we can derive the standard error for the overall asset beta estimate using the methodology laid out by Lally in 2008.¹⁰⁸⁸ These are calculated for each of the 5-year periods analysed and separately calculated for weekly and 4-weekly estimates.

6.892 Our draft decision was to use the average of the weekly and 4-weekly estimates from the 2014-2019 sample for our standard error estimate, based on our draft decision asset beta sample. We concluded that the 2009-2014 period was anomalous and led to an implausible range.¹⁰⁸⁹

6.893 In submissions on our draft decision, Chorus states that there is no reason to rely solely on the estimation from the latest 5-year period (2014-2019) and give no regard to the previous 5-year period (2009-2014). It also notes that this is inconsistent with the approach to determining the asset beta estimate.¹⁰⁹⁰

6.894 Chorus proposed that the Commission should at least adopt the mid-point value between the simple average standard error of 0.21 and the minimum standard error of 0.11. This would result in an asset beta standard error of 0.14 (compared to our draft decision of 0.13).¹⁰⁹¹

6.895 Table 6.15 below shows the asset beta standard error estimates based on our updated asset beta sample.¹⁰⁹²

Table 6.15 Asset beta standard error estimates

	2009-14	2014-19
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¹⁰⁸⁸ See Lally “The Weighted Average Cost of Capital for Gas Pipeline Businesses” (October 2008), Appendix 3.

¹⁰⁸⁹ Commerce Commission “Fibre input methodologies – Draft decision paper” (19 November 2019), para 3.1052 – 3.1053.

¹⁰⁹⁰ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 235.

¹⁰⁹¹ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 238.

¹⁰⁹² For more information on the updated asset beta sample, see 6.417 to 6.440.

4-Weekly	0.32	0.10
Weekly	0.26	0.17
Average	0.29	0.14

- 6.896 Our estimate of the asset beta is based on a combination of the latest two 5-yearly periods, averaged across weekly and 4 weekly estimates. Calculating the standard error by averaging over the two 5-yearly periods provides an associated standard error estimate of 0.21. Our view remains that the asset beta range implied by this standard error estimate is implausibly large. This is driven by the very large standard errors for the 5-year period of 2009 to 2014 which imply a range of two standard deviations around the asset beta estimate of between -0.07 to 1.09 for the 2009-2014 period.¹⁰⁹³
- 6.897 The standard error is used to give an appropriate range for the asset beta estimate. The asset beta is unobservable so we must estimate an appropriate value and a reasonable range that should apply. We consider that the 2009-2014 sample leads to an implausible range of asset beta estimates.
- 6.898 We also consider that the alternative approach raised by Chorus appears to have no principled basis – it is simply averaging the minimum and average values of the standard error estimates. In light of this, we have retained the approach we proposed in our draft decision.
- 6.899 We have adopted the standard error for only the latest 5-year period between 2014 to 2019 for the following reasons:
- 6.899.1 an asset beta of 0.5 combined with a standard error of 0.21 would lead to a very wide asset beta range (plus and minus two standard deviations would generate a range from 0.08 to 0.92). This range exceeds all information before us on views and evidence of the likely asset beta;
 - 6.899.2 there is a significant difference between the standard error estimates for the two 5-year periods (the standard error for 2009 to 2014 is approximately 0.29 and for 2014 to 2019 it is 0.14);
 - 6.899.3 the purposes of ID regulation would be undermined by a standard error which provided an implausible range;

¹⁰⁹³ We faced a parallel situation in respect of Airport Services asset beta estimation in 2010 and 2016. See Commerce Commission, “Input Methodologies (Airport Services): Reasons Paper” (December 2010), paragraphs E8.107 to E.8114 and Commerce Commission “Input Methodologies review decisions: Topic paper 4: Cost of capital issues” (December 2016), paragraphs 589 to 595.7.

- 6.899.4 the standard error for the period between 2009 to 2014 is clearly implausible as it implies a range from a negative asset beta to an asset beta above one for regulated providers; and
- 6.899.5 using the latest 5-year estimate grounds the estimate in relevant data whilst maintaining a plausible range.
- 6.900 As a cross-check, we can use the relative standard error to compare our decision for regulated providers with our estimates of asset beta and the associated standard error in our other regulated sectors.¹⁰⁹⁴ Table 6.16 below shows that the standard error for our final decision for our final decision is in the range of the standard errors we have determined for the other sectors that we regulate.

Table 6.16 Asset beta relative standard error

	Asset beta	Standard error	Relative standard error
EDBs/Transpower (2016 IM Review)	0.35	0.12	34%
GPBs (2016 IM Review)	0.40	0.12	30%
Airports (2016 IM Review)	0.60	0.16	27%
FFLAS final decision	0.50	0.14	28%

- 6.901 We have therefore set a standard error for the asset beta for regulated providers at 0.14.

Our approach to the standard error of TAMRP

- 6.902 The TAMRP is a difficult parameter to estimate and is subject to substantial potential error. In 2008 Dr Lally estimated the standard error associated with the TAMRP at 0.015.¹⁰⁹⁵ This provides a substantial range of error and indicates that the TAMRP values of between 6% to 9% are within one standard error of the mean of 7.5%.
- 6.903 In light of no further evidence, our decision is to use the estimate of 0.015 for what is an economy-wide parameter.

¹⁰⁹⁴ The relative standard error shows the significance of the standard error relative to the sample point estimate. It can be calculated as Relative standard error (RSE) = (standard error/point estimate) * 100.

¹⁰⁹⁵ See Lally "The Weighted Average Cost of Capital for Gas Pipeline Businesses" (October 2008), Appendix 2.

6.904 We note the survey by Fernandez, which provides the standard deviation of the MRP used by analysts and companies.¹⁰⁹⁶ For New Zealand, the standard deviation of the MRP was 0.008.

6.905 For the US, the standard deviation of the MRP was 0.014.

6.906 We note the smaller standard deviation for New Zealand but we have no reason to consider MRP estimates to be less error prone for New Zealand than larger economies such as the US (where we expect there are a larger pool of estimates and more time spent on estimating the MRP). These survey estimates are not directly relevant to our TAMRP standard error calculation but give a sense of standard deviations from different MRP estimates in a range of countries.

6.907 We received no submissions disagreeing with our draft decision and Chorus agreed with our draft decision to set the standard error at 0.015 for the TAMRP.¹⁰⁹⁷

6.908 Therefore, for the reasons outlined above, our decision is to use a 0.015 estimate of the standard error for the TAMRP in the IM.

Our approach to the standard error of the debt premium

6.909 The debt premium is an estimate and as such has uncertainty associated with it. In order to capture this uncertainty the standard error needs to be estimated alongside the debt premium parameter.

6.910 We have set a fixed standard error for the debt premium of 0.0015.¹⁰⁹⁸ We have considered using the following formula for estimating the debt premium standard error where s_n is the standard error of the debt premium:

$$s_n = \sqrt{\frac{1}{N-1} \sum_{i=1}^N (x_i - \bar{x})^2}$$

where:

N is the number of sample observations;

x_i are the observed values of the sample items; and

¹⁰⁹⁶ Fernandez, Martinez and Acin, “Survey: Market Risk Premium and Risk-Free Rate used for 81 countries in 2020” IESE Business School, March 25 2020.

¹⁰⁹⁷ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 234.4.

¹⁰⁹⁸ As a result of our 2016 review of the IMs relating to the supply of electricity lines services, gas pipeline services and specified airport services, we amended the IMs to introduce a fixed standard error of the debt premium of 0.0015. This replaced the formula below which had been used to estimate the standard error of debt premium for the IMs determined under Part 4 of the Commerce Act 1986, in 2010. See Commerce Commission “Input methodologies review decision: Topic Paper 4: Cost of capital issues” (December 2016), paragraph 602.

\bar{x} is the mean value of these observations (the debt premium estimate).

- 6.911 We have not used this formula as we consider that it is unlikely for data to be available to employ the formula. We also note that, in practice, this parameter has very little impact on the standard error of the overall WACC. For example, the standard error of the debt premium would need to increase to 0.005 to have any impact on the standard error of the overall WACC (based on the current assumptions and when rounded to four decimal places).¹⁰⁹⁹
- 6.912 Given the very limited materiality of changes in the standard error of the debt premium, we consider there is little benefit in undertaking additional analysis of this parameter.
- 6.913 Submissions on our draft decision agreed with our draft decision to set the standard error at 0.0015 for the debt premium.¹¹⁰⁰
- 6.914 Therefore, we have determined that a fixed standard error of the debt premium of 0.0015 should apply.

Our final overall estimate of the standard error

- 6.915 In combination, these individual standard error estimates for asset beta, TAMRP and debt premium result in an overall estimate of the standard error of the WACC for regulated providers of around 0.0131 which we have specified in the IM.¹¹⁰¹

Reasonableness checks

Purpose of this section

- 6.916 This section discusses whether our WACC estimate of 4.92% and asset beta parameter of 0.50 for regulated providers, based on the decisions set out in this paper and compared with a range of comparative information, is a reasonable

¹⁰⁹⁹ The precise amount will depend on the level of the estimated debt premium at the time we make a WACC determination. We have assumed a debt premium of 1.60% for this estimate and the debt premium would need to move by a substantial amount to make a material difference to the overall standard error estimate.

¹¹⁰⁰ For example, see: Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), para 234.3.

¹¹⁰¹ The final estimate is based on a debt premium value of 1.60% (the same as our draft decision). The actual debt premium applying to the price-path will be that estimated at the time that we make the WACC determination for the price-quality path. The change to the standard error from our draft to final decision come from the change to the asset beta estimate (0.49 to 0.50) and the standard error for the asset beta estimate (0.13 to 0.14).

estimate of the cost of capital.¹¹⁰² Table 6.17 below illustrates our WACC estimate calculation.¹¹⁰³

Table 6.17
WACC estimate for a 5 year term
(Risk-free rate estimated as at September 1, 2019)

Parameters	Inputs	Estimates
Risk-free rate		1.12%
Debt premium		1.65%
Leverage		29%
Asset beta		0.50
Debt beta		0.00
TAMRP		7.5%
Corporate tax rate		28.0%
Investor tax rate		28.0%
Debt issuance costs		0.20%
Equity beta		0.70
Cost of equity		6.06%
Cost of debt		2.97%
Vanilla WACC (mid-point)		5.16%
Post-tax WACC (mid-point)		4.92%

- 6.917 Our WACC estimates for regulated FFLAS, as at 1 September 2019, are compared to the publicly available information listed above.¹¹⁰⁴ Our WACC estimates are calculated based on the cost of capital decisions set out in this paper. If our decision produces reasonable WACC estimates as at 1 September 2019, we consider they will also produce reasonable estimates at other dates since the risk-free rate will be linked to prevailing market rates.
- 6.918 The purpose of the reasonableness checks is to test whether application of the IMs will produce commercially realistic estimates of the cost of capital. The reasonableness checks are intended to help identify any potential oddities in our estimates, which would suggest modifications should be made to the cost of capital IMs.

¹¹⁰² The WACC estimate in our draft decision was 4.88%, the increased asset beta parameter, debt premium and decreased leverage resulted in the change of our final WACC estimate.

¹¹⁰³ The IM midpoint for regulated FFLAS is indicative, using inputs for risk-free rate from September 2019; the FFLAS BBB 5-year historical average debt premium. The expected NZ market return is equal to WACC with equity beta set to 1 and the average market leverage is set to 22% based on the PwC report from December 2019. For comparability reasons the risk-free rates of these estimates were set at 1.12%.

¹¹⁰⁴ We have used a risk-free rate estimated as at 1 September 2019, which has no impact on the reasonableness tests because we normalise our calculations for risk-free rate.

6.919 The rest of this section:

- 6.919.1 explains why we do not specify these reasonableness checks as part of the cost of capital IM;
- 6.919.2 explains our approach to undertaking reasonableness checks of our WACC estimate, and the adjustments we have made to help make alternative WACC estimates more comparable to our estimates;
- 6.919.3 summarises why we consider our WACC estimates for regulated FFLAS are likely to be reasonable based on the information assessed; and
- 6.919.4 describes in detail the comparative information used when undertaking reasonableness checks for regulated FFLAS;

We are not specifying these reasonableness checks in the cost of capital IM

- 6.920 We are not specifying these reasonableness checks as part of the cost of capital IM. We consider that formally including a requirement to undertake reasonableness checks in the IMs would create significant subjectivity and uncertainty. For example, we would have to determine:
 - 6.920.1 the weight that would be accorded to each reasonableness test;
 - 6.920.2 criteria outlining when to adjust our cost of equity estimate derived from the SBL-CAPM in light of the results from the reasonableness tests; and
 - 6.920.3 the degree of any resulting adjustment from the reasonableness tests.
- 6.921 All three steps would require a significant degree of additional judgement and would have, most likely, to be considered on a case by case basis. For these reasons, we consider that formally including reasonableness tests – and any associated adjustment process – in the IM would be inconsistent with the purpose of IMs in s 174 of promoting certainty to regulated providers, access seekers, and end-users.
- 6.922 If our informal reasonableness checks were largely inconsistent with our estimates, we would investigate what is driving the differences and consider whether we needed to make any changes.

Approach to undertaking reasonableness checks of our WACC estimates

- 6.923 This section explains the approach we have used when undertaking reasonableness checks of our WACC estimates, including:
 - 6.923.1 the publicly available comparative information we have considered;
 - 6.923.2 the weight placed on WACC estimates from different sources; and

6.923.3 our approach to adjusting WACC estimates from other sources, to ensure they are comparable with our estimates.

We have used publicly available post-tax WACC estimates

6.924 When undertaking our reasonableness checks, we have used publicly available information on:

6.924.1 the current New Zealand post-tax risk-free rate and the post-tax cost of corporate debt;

6.924.2 historic and forecast estimates of the returns achieved on New Zealand investments of average risk;

6.924.3 independent estimates of the post-tax WACC for suppliers of regulated services in New Zealand (and similar businesses), including estimates from PwC and New Zealand investment banks; and

6.924.4 estimates of the post-tax WACC from other regulatory contexts, particularly Australia.

6.925 We have compared our post-tax WACC estimate with independent estimates, as the comparative information is generally available on a post-tax basis only. All references to WACC in this section should be read as references to post-tax WACC.

We have placed most weight on NZ-sourced WACC estimates for regulated FFLAS

6.926 We have used a hierarchy of publicly available comparative information when assessing the reasonableness of our WACC estimates. In particular, we consider the available information should be considered in the following order of importance.

6.926.1 The plausible range: Our WACC estimates are compared with a plausible range of returns on the New Zealand market bounded at the upper end by the historical and expected future returns on the New Zealand market for a firm of average risk (using estimates from brokers and practitioners). The plausible range is bounded at the lower end by five-year government bond rates (that is the returns on investment with no default risk) and the returns on BBB rated corporate bonds (ie, investments with some default risk but still comfortably considered investment grade).¹¹⁰⁵

¹¹⁰⁵ The upper limit of the range is based on the fact that regulated providers are typically low risk, so equity investors would expect to earn a lower return for these businesses than when investing in a New Zealand company of average risk. For the lower limit of the range, we have proposed using the returns on BBB rated corporate bonds for regulated FFLAS, reflecting the benchmark long-term credit ratings we have used when estimating the cost of debt.

- 6.926.2 NZ-sourced estimates of the cost of capital for regulated FFLAS and similar businesses: Our estimates are compared with available information on the cost of capital for New Zealand suppliers of regulated FFLAS sourced from brokers and practitioners, and unregulated businesses with significant market power.
- 6.926.3 Overseas estimates of the regulated cost of capital: Our estimates are compared with cost of capital estimates from overseas regulatory decisions (primarily from Australia) for fibre services provided by the NBN. We have excluded the United Kingdom (OfCom's estimates) as their methodology differs from ours and is not directly comparable.
- 6.927 We consider that New Zealand sourced WACC estimates should be given more weight than overseas estimates. International WACC estimates can be affected by a number of country-specific factors such as differences in tax regimes, monetary conditions, regulatory regimes, and investors' relative risk aversion. In its judgment on the Part 4 IMs merits appeals, the High Court agreed that "...the most helpful comparative material for cross-checking purposes comprises independent assessments of WACC in the New Zealand context".¹¹⁰⁶

We have normalised for differences in risk-free rates

- 6.928 We have normalised the comparator WACC estimates for differences in risk-free rates.¹¹⁰⁷ This is because our analysis is intended to assess the overall reasonableness of our WACC estimates, rather than highlighting differences resulting simply from adopting an alternative approach to estimating the risk-free rate, or estimating the risk-free rate at a different date.
- 6.929 We use prevailing interest rates when determining the risk-free rate.¹¹⁰⁸ In contrast, some other analysts and regulatory authorities use long-term averages when estimating the risk-free rate.
- 6.930 During periods where domestic interest rates are relatively low in New Zealand, our WACC estimates are likely to appear low compared to other estimates. Conversely, during periods where New Zealand interest rates are high, our WACC estimate will appear relatively high. Over time, these approaches should tend to balance out, but in the short term the comparability of the WACC estimates is affected.

¹¹⁰⁶ Wellington Airport & others v Commerce Commission [2013] NZHC 3289, at [1213].

¹¹⁰⁷ We have not standardised WACC estimates for differences in the debt premium. The amounts involved are significantly smaller and have a limited effect on the analysis.

¹¹⁰⁸ We note that using prevailing interest rates when determining the risk-free rate is consistent with our approach to the IMs relating to the supply of electricity distribution services, gas pipeline services, and specified airport services determined under Part 4.

- 6.931 To normalise for the difference between prevailing risk-free rates and long-term averages of the risk-free rate, we have adjusted comparator WACC estimates to reflect our estimate of the risk-free rate as at 1 September 2019 (which is 1.12%).¹¹⁰⁹

Why we consider our WACC estimates are reasonable

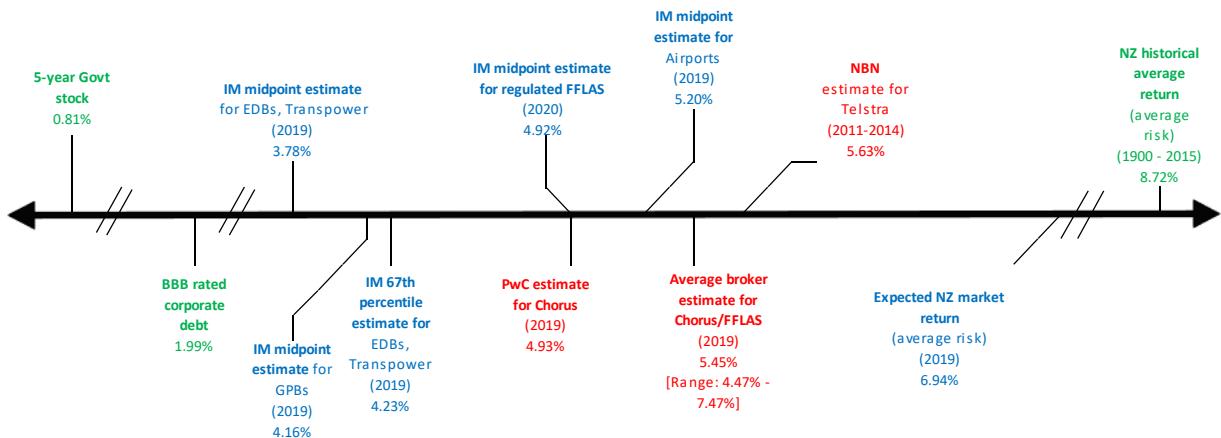
- 6.932 We consider that our WACC estimates are reasonable based on the comparative information we have assessed.

- 6.933 Figure 6.9 below compares the estimates of the post-tax WACCs for regulated FFLAS against a range of other information. The reasonableness of the estimates for regulated FFLAS is discussed later, at paragraph 6.935.1. In particular we have considered:

- 6.933.1 current New Zealand post-tax risk-free rates and post-tax cost of corporate debt;
- 6.933.2 historic and forecast estimates of the returns achieved by New Zealand investors on an investment of average risk;
- 6.933.3 previous New Zealand regulatory decisions, and recent regulatory decisions in Australia;
- 6.933.4 external estimates of the post-tax WACC for similar businesses, including estimates from PwC and New Zealand investment banks.

- 6.934 The current risk-free rate, corporate cost of debt, and the historic return on the New Zealand market can be estimated independently of the choice of model, CAPM or otherwise.

¹¹⁰⁹ Specifically, our standardisation adjusts independent WACC estimates for the difference between the risk-free rate we use, and the risk-free rate used by independent analysts.

Figure 6.9 WACC reasonableness check¹¹¹⁰

6.935 We have assessed the reasonableness of our regulated FFLAS WACC estimate based on our mid-point estimate. This reflects our proposal to publish only a mid-point WACC estimate for regulated FFLAS (along with the standard error of the WACC). We consider that the mid-point post-tax WACC estimate for regulated FFLAS of 4.92% (as at 1 September 2019) is reasonable given it is:

6.935.1 Below the forecast return on New Zealand investments of average risk (6.94%)¹¹¹¹, but well above the post-tax returns on five-year government stock (0.81%) and five-year BBB bonds (1.99%). This is consistent with expectations that investors in regulated providers face lower risks than investors in the average New Zealand firm, but greater risks relative to corporate bonds and government stock.

6.935.2 Our estimates of the post-tax WACC for regulated FFLAS for application in setting PQ paths is reasonable since:

6.935.3 it falls appropriately between the post-tax cost of debt and the cost of capital for the average New Zealand firm (based on historic and forecast estimates, and assuming 22% gearing). This is reasonable because:

6.935.3.1 regulated FFLAS have much lower exposure to risk than the average New Zealand firm. Accordingly, the cost of capital for

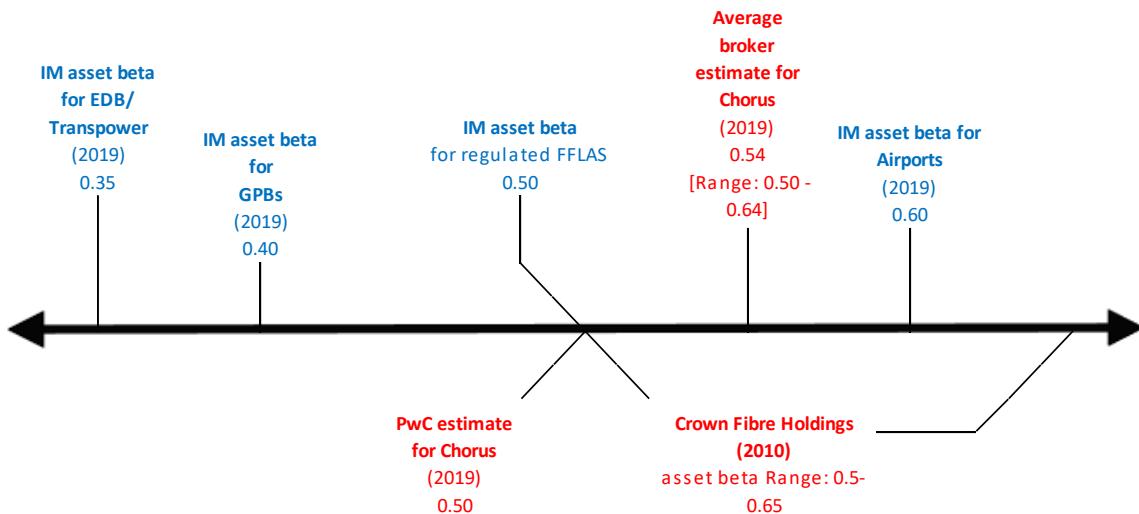
¹¹¹⁰ The New Street Research data is not included in the calculation of the average broker estimates for FFLAS as it is not a market-wide report. It was a submission on our further consultation paper rather than a market analyst report.

¹¹¹¹ The forecast return is calculated the same way as our WACC with the difference in equity beta, which is set to 1.

these regulated providers can be expected to be well below the cost of capital for a New Zealand firm of average risk; and

- 6.935.3.2 the cost of capital for a regulated provider must be well above the cost of debt as the cost of capital includes the cost of equity (which is greater than the cost of debt);
- 6.935.4 our estimate for regulated FFLAS providers is above the cost of capital for EDBs and Transpower New Zealand Limited (Transpower) estimated by us in September 2019; and
- 6.935.5 our estimate is close to the one estimated in PwC's most recent quarterly cost of capital report for Chorus.¹¹¹²

Figure 6.10 Asset beta reasonableness check



6.936 We note that some submitters argued that the WACC estimate is too low.¹¹¹³

6.937 Submissions noted that the Commission has mistakenly used real vanilla cost of capital estimates by Ofcom in the reasonableness checks and then incorrectly

¹¹¹² PricewaterhouseCoopers publishes estimates for around 105 listed New Zealand companies on a quarterly basis and is publicly available on the internet. The December 2019 report is the most recent available at the time this paper was finalised, available at <https://www.pwc.co.nz/pdfs/2019pdfs/cost-of-capital-report-dec-2019.pdf>

¹¹¹³ For example, Unison "Submission on Fibre input methodologies – Draft decision" (30 January 2020) , Telstra Super "Submission on Fibre input methodologies – Draft decision" (30 January 2020) , L1 Capital "Submission on Fibre input methodologies – Draft decision" (30 January 2020),

compared those against the Commission’s nominal post-tax cost of capital for FFLAS.¹¹¹⁴

- 6.938 We agree that we mistakenly used real vanilla WACC estimates. However, even with the corrected post-tax estimates, OfCom’s approach is not directly comparable to the one used by the Commission.

- 6.939 CEPA’s report noted that:

Ofcom’s asset beta estimate for BT’s fibre to the premises (FTTP) services (0.65, included within the Other UK Telecoms segment) is based on an assessment of the systematic risk exposure of these services in Great Britain. A careful analysis of the evidence relied on by Ofcom indicates that the same conditions do not apply to the New Zealand FFLAS providers, for whom systematic risk exposure is likely to be significantly lower.¹¹¹⁵

- 6.940 CEPA then explained:

Other regulatory determinations should not be relied upon to directly set parameters, but rather to highlight useful insights and thinking in relation to the service under consideration. Therefore, consideration of decisions made by other regulators needs to be grounded in an appreciation of the nature of their regulatory framework, the context of each regulator’s previous decisions, and the characteristics of the services that are being regulated. Without this analysis, relying on point estimates adopted by other regulators risks selecting parameters that are simply not relevant for New Zealand.¹¹¹⁶

- 6.941 We agree with CEPA that FFLAS providers in New Zealand may well face a different systematic risk than other jurisdictions. Consequently, other regulator’s determinations should not be relied upon directly. As a result, we have decided not to use OfCom’s estimates in our WACC and asset beta reasonableness check.
- 6.942 Sapere noted that “[t]he Commission has used a risk-free rate as at 1 September 2019 of 1.12%. This is its estimate of the five-year government bond rate (Commerce Commission, 2019). However, the Commission uses 1.00% for the five-year Government stock and associated corporate debt rate.”¹¹¹⁷

¹¹¹⁴ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), p. 66; Sapere “Submission on Fibre input methodologies – Draft decision” (27 January 2020)

¹¹¹⁵ Cambridge Economic Policy Associates “Cost of capital for regulated fibre telecommunication services in New Zealand: Response to submissions on the Input Methodologies Draft Decision” (13 October 2020), page 6.

¹¹¹⁶ Cambridge Economic Policy Associates “Cost of capital for regulated fibre telecommunication services in New Zealand: Response to submissions on the Input Methodologies Draft Decision” (13 October 2020), page 22.

¹¹¹⁷ Sapere “Submission on Fibre input methodologies – Draft decision” (27 January 2020)

6.943 Sapere also noted that we adopted PwC's stated "floor" value for asset beta of 0.4 in the reasonableness test. We have updated the asset beta value to 0.5.¹¹¹⁸

6.944 We have addressed this comment and changed the risk-free rate to 1.12% for the five-year Government stock and associated corporate debt rate as at September 2019.

6.945 Sapere also noted:

The Commission has described "historic and forecast estimates of the returns achieved by New Zealand investors on an investment of average risk". In fact, this is an estimate of the FFLAS WACC (using the Commission's model and assumptions), except that it sets the equity beta at 1. [t]he Commission comments that "regulated FFLAS have much lower exposure to risk than the average New Zealand firm" (paragraph 3.1251.1.1); there is no evidence presented for this view. In any case, the comparison shown is not with "the average New Zealand firm.

6.946 For the estimate of the returns achieved by New Zealand investors on an investment of average risk we have used average market risk assumptions in estimating the cost of equity, including a market-wide risk-free rate and TAMRP, and applying an equity beta of 1. We updated our estimate using a market-wide leverage of 22%.¹¹¹⁹ For the cost of debt we used the FFLAS BBB 5-year historical average debt premium as a simplifying assumption and we consider that our view of debt issuance costs is generally applicable across the New Zealand market. We used these assumptions to approximate what an average return for a New Zealand company may be to provide context for our WACC estimate.

6.947 We further explain exposure to risk and equity beta in detail in paragraph 6.413.

Application of regulatory WACC

6.948 The purpose of this section is to lay out how and when, in practice, we apply the cost of capital IMs in making regulatory WACC determinations.

Regulatory WACC timing

Summary of final decision

6.949 For regulatory WACC determinations in respect of PQ, our final decision is to determine the regulatory WACC as of the first business day of the month seven months prior to the start of each regulatory period, no later than six months prior to

¹¹¹⁸ We have updated the PwC estimate of asset beta, PwC report available at: <https://www.pwc.co.nz/pdfs/2019pdfs/cost-of-capital-report-dec-2019.pdf>

¹¹¹⁹ The assumed market leverage is the averaged leverage across listed companies in New Zealand, based on PwC's report from December 2019 available at: <https://www.pwc.co.nz/pdfs/2019pdfs/cost-of-capital-report-dec-2019.pdf>

the start of the regulatory period. We will publish the determinations within one month of having made them. This remains unchanged from our draft decision.

- 6.950 For regulatory WACC determinations in respect of ID regulation our final decision is to make the determinations annually within one month of the start of each disclosure year. We will publish the determinations within one month of having made them. They will be aligned with the company ID disclosure year (within one month).

Timing issues with regulatory WACC determinations

- 6.951 The cost of capital IM lays out how we will calculate regulatory WACC when making determinations. For some elements this specifies the parameter estimate to be used. For the risk-free rate and debt premium, it lays out our methodology for calculating these parameters.
- 6.952 One aspect of this is the timing of when we make a regulatory WACC determination. The timing of regulatory WACC determinations can be important for the practical implementation of the regulatory regime and our final decision is to specify the timing of determinations within the cost of capital IM.
- 6.953 There are two types of regulatory WACC determinations.

- 6.953.1 Those that apply to PQ paths, for which our final decision is to estimate the regulatory WACC prior to the start of a PQ path.
- 6.953.2 Those that are determined for the purposes of ID regulation, for which our final decision is to estimate the regulatory WACC annually.

Timing of regulatory WACC determinations for PQ paths

- 6.954 Regulatory WACC determinations for PQ paths should be as close to the start of the PQ path as possible while providing sufficient time to allow for the implementation of the new PQ path. This is closely linked to the process for specifying PQ paths.
- 6.955 Our final decision is to determine the regulatory WACC six months in advance of the PQ path coming into effect. This allows time for the regulated providers to make the necessary changes to implement the new PQ path. We allow a window of one month to make the determination hence we specify the first business day 7 months and no later than 6 months prior to the start of the regulatory period. The publication of the determination can occur up to one month later. Hence for the first PQ path:
- 6.955.1 the path takes effect on 1st January 2022;
 - 6.955.2 the first business day seven months prior to the start of the new PQ path is Tuesday 1 June 2021; and

6.955.3 the day six months in advance of this is 1st July 2021 which is the last possible determination date; and

6.955.4 publication can occur no later than one month later being 30 July as 1 August is a Sunday.

6.956 We acknowledge that there is a potential extra re-pricing risk where we determine the regulatory WACC as near to the date of the PQ path coming into effect as practicable. We do not believe this is substantial, but it nonetheless should be minimised where possible. We consider that determining the regulatory WACC six months in advance strikes an appropriate balance between allowing sufficient time for regulatory providers subject to PQ to make necessary changes to implement the new PQ path and the potential extra re-pricing risk.

6.957 We received no submissions on this topic.

Timing of regulatory WACC determinations for ID regulation

6.958 Our final decision is that regulatory WACC determinations for ID regulation are determined annually to allow comparison to disclosure profitability information. This remains unchanged from our draft decision.

6.959 There are fewer practical limits on the timing of the regulatory WACC as for PQ paths. We consider that precisely when the determination is made matters less, as analysis of regulated providers' profitability is *ex-post*.

6.960 Nevertheless, we consider that determining the regulatory WACC for ID regulation within one month after the start of a disclosure year would ensure that sufficient information is readily available to interested persons to assess whether the purpose of Part 6 is being met, consistent with s 186.

6.961 Submissions we received on this topic were supportive.¹¹²⁰

6.962 Our final decision is to publish the regulatory WACC determinations within one month of having made them.

Vanilla versus post-tax WACC

6.963 Our final decision is that maximum revenues should be set for regulated providers subject to PQ regulation using a vanilla WACC approach, because the vanilla WACC is most simply able to deal with any tax losses that a regulated provider has notionally carried forward up to and after implementation date.

¹¹²⁰ Chorus "Submission on Fibre input methodologies: Draft decision – reasons paper dated 19 November 2019 and Draft fibre input methodologies determination 2020 dated 11 December 2019" (30 January 2020), paragraph 246.

- 6.964 Our current intention under ID, subject to consultation with interested persons as part of our draft determination under s 170 specifying how information disclosure regulation applies to regulated providers from the start of the first regulatory period, is that returns should be disclosed on both a vanilla WACC and a post-tax WACC basis.

Rationale for final decision

- 6.965 The IRD calculates a firm's tax liability after deducting debt interest expenditure from gross revenue (ie, there is an 'interest tax shield' resulting from debt financing). This should therefore be recognised irrespective of the tax approach that is used.
- 6.966 When tax is provided in a separate building block for revenue setting purposes then there are two options available.
- 6.967 Option 1 is to estimate the tax costs facing a business as if it had no debt (ie, assessing an unleveraged tax liability). In this case, the cost of capital would need to be calculated in such a way that recognises that the business realises tax benefits through leverage that are not reflected in the estimate of the firm's tax costs. An adjustment of this nature results in a 'post-tax' WACC. A cost of capital such as this is comparable to the measures commonly used by financial analysts when assessing the profitability of a business.
- 6.968 Option 2 is to estimate the tax costs facing the firm in a way that recognises that they realise tax benefits through leverage (ie, by estimating the 'levered tax liability'). Under this approach, an assessment of the firm's cost of debt in the cost of capital would be free of any tax adjustments. The resultant WACC is consequently known in New Zealand as a 'vanilla WACC'. This ensures that the tax estimate more accurately reflects the business's tax liabilities to the IRD.
- 6.969 For ID, our current intention (subject to consultation) is to use both vanilla WACC and post-tax WACC when disclosing returns because:
- 6.969.1 disclosing returns using the vanilla WACC will be most accurate in situations where tax losses exist and will allow more accurate comparisons of financial performance between regulated providers; whereas
 - 6.969.2 disclosing returns using post-tax WACC will be most easily understood by interested stakeholders (any minor variations in returns due to tax losses can be explained).

Stakeholder views

- 6.970 Our draft decision was for the MAR under PQ regulation to be set using the vanilla WACC. For ID, our draft decision anticipated that regulated providers would be required to use both vanilla WACC and post-tax WACC when disclosing returns.¹¹²¹
- 6.971 Stakeholders generally supported the use of the post-tax WACC for the disclosure of returns under ID.
- 6.972 Chorus agreed with our approach to disclose returns under ID regulation using a post-tax WACC and a vanilla WACC as each is useful alongside the notes that can accompany ID. While post-tax WACC is often more readily understandable, vanilla WACC is more accurate where tax losses exist and allows for better comparison between regulated suppliers.¹¹²²
- 6.973 Enable and Ultrafast Fibre supported the disclosure of post-tax returns for ID, because it is a common measure of returns and is more readily understood by stakeholders.¹¹²³
- 6.974 Chorus supported our draft decision for the MAR to be set using vanilla WACC and there were no opposing views, noting Incenta's submission that this only has a practical effect where a regulated supplier is making a tax loss.¹¹²⁴

Our overall approach to the cost of capital for the purposes of ID regulation

- 6.975 We have considered each element of estimating the WACC for the purposes of ID regulation separately. We have also considered the approach as a whole.
- 6.976 Our main decisions on estimating the WACC for the purposes of ID regulation are:
- 6.976.1 matching the term of the risk-free rate to the regulatory period which applies for the purposes of PQ regulation;
 - 6.976.2 setting the debt premium using a five-year term, a BBB credit rating and allowing for a TCSD;

¹¹²¹ Commerce Commission "Fibre input methodologies – Draft decision paper" (19 November 2019), paragraphs 3.1926-3.1928.

¹¹²² Chorus "Submission on Fibre input methodologies: Draft decision – reasons paper dated 19 November 2019 and Draft fibre input methodologies determination 2020 dated 11 December 2019" (30 January 2020), page 98.

¹¹²³ Enable and Ultrafast Fibre "Submission on NZCC Fibre Input Methodologies: Draft Decision – Reasons Paper and Draft Fibre Input Methodologies Determination" (30 January 2020), page 15.

¹¹²⁴ Chorus "Submission on Fibre input methodologies: Draft decision – reasons paper dated 19 November 2019 and Draft fibre input methodologies determination 2020 dated 11 December 2019" (30 January 2020), page 98.

- 6.976.3 setting an asset beta of 0.50 and a TAMRP of 7.5%;
 - 6.976.4 setting leverage at 29%; and
 - 6.976.5 publishing WACC determinations annually within two months of the start of each disclosure year, comprising of the mid-point estimate and standard error.
- 6.977 Our benchmark WACC for the purposes of ID regulation is equivalent to the WACC likely to apply, were regulatory providers that are only subject only to ID regulation, were also subject to PQ regulation.
- 6.978 We recognise some merits in considering that regulated providers subject only to ID regulation do not have a regulatory period to match or that there may be some firm-specific factors which are relevant. For example, unlike regulated providers subject to PQ and ID regulation, regulated providers subject only to ID regulation are not restricted as to how and when they set prices of regulated FFLAS.
- 6.979 However, our published WACC is a benchmark, as such other factors are always potentially relevant when interpreting the benchmark against historic performance of regulated providers. For example:
- 6.979.1 even if a regulated provider's historic profits did not exceed the benchmark WACC, if they supplied regulated FFLAS of a quality that did not reflect end-user demands and do not improve efficiency, this may be an indicator of excessive profitability; likewise
 - 6.979.2 if a regulated provider's historic profits exceeded the benchmark WACC, this may not indicate excessive profitability where their efficiency has improved.
- 6.980 Regulated providers subject only to ID regulation are not limited in the information they choose to publicly disclose. This can allow interested persons to assess any information publicly disclosed in coming to a view on historic performance. For the purposes of ID regulation, our final decisions result in an overall benchmark based on the WACC that would apply were the regulated provider subject to PQ regulation. We consider that this information would allow interested persons to assess whether regulated providers are limited in their ability to extract excessive profits, consistent with the purpose of ID regulation in s 186.¹¹²⁵

¹¹²⁵ Under s 186, the purpose of ID regulation is to ensure that sufficient information is readily available to interested persons to assess whether the purpose of Part 6 is being met.

Asymmetric risk

- 6.981 The purpose of this section is to consider the potential asymmetric risks facing regulated providers and to explain our decisions for how compensation for such risks, if any, should be reflected in the IMs.¹¹²⁶
- 6.982 The consideration of asymmetric risks has potential flow-on effects to several IMs. For this reason, we have consolidated those considerations within this separate section. Given our final decision, the main impact is on the asset valuation IM.
- 6.983 This section sets out our decision-making framework for asymmetric risks, explains asymmetric risk, and discusses the rationale for our decisions.

Summary of final decisions

- 6.984 For regulated providers subject to PQ supplying regulated FFLAS, our final decisions are as follows.
- 6.984.1 Compensation for Type I asymmetric risks that are uninsured,¹¹²⁷ such as earthquakes, can be provided *ex-post* as part of specifying the PQ paths (including reconsideration of an existing price-quality path).
 - 6.984.2 Compensation for Type II asymmetric risk associated with asset stranding will be provided by a combination of the following: retaining assets in the RAB in regulated markets, allowing for the possible shortening of asset lives (or alternative depreciation profiles) and a modest *ex-ante* allowance.
 - 6.984.3 The *ex-ante* allowance:
 - 6.984.3.1 will be specified in the asset valuation IM and have a quantum of 10 basis points;
 - 6.984.3.2 will not be implemented through the WACC, but rather through cash flows at the time of setting a PQ path;
 - 6.984.3.3 relates to the whole RAB, where the 10 basis points is applied to the allocated RAB (including accumulated losses) to derive a stranding allowance, which is included in the allowed revenue; and

¹¹²⁶ This topic is different to the asymmetric consequences of over/under-investment.

¹¹²⁷ We provide an explanation of Type I and II asymmetric risks in the section “Explanation of asymmetric risk”.

- 6.984.3.4 is not applied retrospectively in calculating the losses in the pre-implementation period.
- 6.984.4 Consistent with the provision of an *ex-ante* allowance, regulated providers will bear some of the risk associated with asset stranding.
- 6.985 For regulated providers supplying regulated FFLAS subject to ID only, our final decision is that no stranding allowance is required within the IMs.
- Decision-making framework for asymmetric risks**
- Section 166*
- 6.986 Under s 166(2) of the Act, we must make decisions that we consider best give, or are likely to best give, effect:
- 6.986.1 to the purpose in s 162 of the Act (s 166(2)(a)); and
 - 6.986.2 to the extent we consider it relevant, to the promotion of workable competition in telecommunication markets for the long-term benefit of end-users of telecommunications services (s 166(2)(b)).
- The promotion of the purpose of Part 6: section 162*
- 6.987 We consider the following to be the most relevant outcomes of the s 162 purpose for our final decisions on the treatment of asymmetric risks.
- 6.987.1 Section 162(a) of the Act which promotes regulated providers having incentives to innovate and to invest, including in replacement, upgraded, and new assets. Our intention is to set an *ex-ante* expectation of earning a normal return on investment such that regulated providers are incentivised to undertake efficient investment.
 - 6.987.2 Section 162(d) of the Act which promotes regulated providers being limited in their ability to extract excessive profits. Our intention is to not provide compensation that enables regulated providers to extract excessive profits, given the limited competition they face.
- 6.988 In reaching our final decisions on asymmetric risks, we aim to strike an appropriate balance between s 162(a) and s 162(d) to best give, or be likely to best give, effect to the outcomes in s 162.
- The promotion of workable competition in telecommunication markets: section 166(2)(b)*
- 6.989 We have considered whether the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services is relevant under s 166(2)(b) in reaching these final

decisions on asymmetric risk. By applying our competition screening considerations, we have identified reasons why the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services may be relevant for these decisions.

- 6.990 Where regulated providers are immunised from the financial effects of competition, this may affect their competitive choices and thereby affect the promotion of competition.

Economic principles

- 6.991 Two of our economic principles are relevant to the issues surrounding asymmetric risks. We introduced and explained our economic principles in Chapter 2.

6.991.1 **FCM** and the related $NPV=0$ principle. Asset stranding risk which is uncompensated may result in a failure to provide for FCM while compensation may, if poorly implemented, fail to meet the $NPV=0$ principle.

6.991.2 **Allocation of risk.** The method by which asset stranding risk is addressed may reallocate this risk either to end-users or regulated providers.

- 6.992 In choosing whether and how to compensate for asset stranding risk, we are directly affecting the *ex-ante* expectations of regulated providers to achieve FCM and the related concept of *ex-ante* $NPV=0$. We discuss this further throughout this chapter.

- 6.993 The choice of compensation method also allocates asset stranding risk to either the regulated providers or end-users. As we discuss within this chapter, we believe that some of this forward-looking risk is, to some extent, within the control of the regulated providers. As such it is more in line with our economic principles that at least some of this risk is allocated to the regulated providers.

Interrelationship with other IMs

- 6.994 The issue of stranding risk affects the IMs.

6.994.1 **Cost of capital IM:** to the extent that asset stranding risk is systematic this should be compensated through the asset beta. Systematic risk refers to market wide risks which affect all investments. Non-systematic risk refers to risks which affect an individual company.

6.994.2 **Asset valuation IM:** the rules determining when assets are allowed into or taken out of the RAB will affect asset stranding risk as will depreciation profiles, RAB Indexation and asset lives.

6.994.3 Regulatory processes and rules IM: Spark has drawn attention to the design of the wash-up mechanism and how this compensates for risks.¹¹²⁸ We note that the detail of how a wash-up will apply could potentially affect stranding risk. Similarly, the extent to which we compensate for stranding risk (as discussed in this section) can influence the design of the wash-up mechanism.¹¹²⁹ Still, it is the existence of a wash-up rather than the detailed mechanics which matter most. In addition, the regulatory rule and processes IM contains the rules on re-openers of the PQ path, which is the mechanism we have decided to use to compensate for Type I asymmetric risk.

Explanation of asymmetric risk

- 6.995 A firm faces asymmetric risk when its distribution of returns is truncated at one extreme without an offsetting truncation at the other. In other words, the firm's payoffs are 'asymmetric'.¹¹³⁰ Asymmetric risk is not compensated for in the standard cost of capital estimations, as we explain in paragraph 6.1035.
- 6.996 In workably competitive markets existing firms may be exposed to the risk of new entry that would erode upside returns when the market is profitable. When the market is unprofitable entrants are unlikely to arrive so incumbent firms are left to entirely bear any losses. In workably competitive markets, firms will try to compensate for the downside risk of bearing the losses by increasing prices where they can and thereby keep an expectation of symmetric returns.
- 6.997 In regulated markets regulation can cap potential profits without providing commensurate insulation from downside risk. For example, firms may be exposed to stranding risk (eg, through technical obsolescence, unfavourable demand shocks), and large catastrophic events such as natural disasters. These risks are potentially asymmetric when firms are not free to price in ways that would compensate for these risks (ie, in the absence of compensating upside).

¹¹²⁸ Spark "Regulatory processes and rules: topic paper submission" (September 2019), paras 18-19.

¹¹²⁹ In Part 4, we limit the revenue that can be recovered following a catastrophic event, in order to share the costs between suppliers and consumers. This effectively allocates the risk between suppliers and consumers, which mitigates moral hazard. See Commerce Commission "Setting the customized price-quality path for Orion New Zealand Limited: Final reasons paper" (29 November 2013), Attachment B: Claw-back.

¹¹³⁰ A coin toss can help illustrate the concept of (a)symmetric risk. Where a coin toss has 50% probability of landing heads or tails, we can say that a player in a coin toss faces a symmetric risk – the probability of winning or losing is the same. Conversely, where the probability of say tails is lower (eg it is not a 'fair coin'), then the player in the coin toss faces an asymmetric risk of winning or losing. Extending this thinking to horse race betting, a gambler will only bet for the horse with lower probability of winning if the payoffs sufficiently compensate her for the asymmetric risk she faces on betting for that horse.

6.998 For clarity it is useful to distinguish the following two categories of asymmetric risk.¹¹³¹

- 6.998.1 Type I risks are risks that are generally unrelated to the day-to-day operations of the firm and arise through infrequent events that could produce large losses (and in some cases strand assets). Examples include natural disasters such as earthquakes, pandemics, terrorist threats, or large, unexpected policy shifts that could force the shutdown of an operating plant before the end of its economic life.
- 6.998.2 Type II risks are risks that derive from the threat of competitive entry or expansion. That is, there may be a cap imposed by regulation on any significant upside to the firm, but typically not the significant downside risk that it faces. On the downside, assets can become stranded through technical innovations that unexpectedly lower costs of competing technologies, or through negative demand shocks.

6.999 The following terms are also relevant in the context of our decisions on asymmetric risk.

- 6.999.1 **Unused asset:** an asset that is no longer used to provide a service. This can be caused by many reasons, including competition (eg end-user switches away from fibre), obsolescence, failure, damage, vacant property etc. it can be permanent or temporary.
- 6.999.2 **Stranded asset:** an unused or underutilised asset in relation to which the owner cannot recover a full return of and on capital. This can be because we deregulate the market in which the asset provides the service, which results in the asset value being removed from the RAB, and the competitive constraints mean the firm cannot set prices to allow for full capital recovery. This will be the case where technological change causes entry at a cost below an efficient fibre provider.¹¹³²
- 6.999.3 **Stranded network:** where assets remain in the RAB, they are not stranded in the economic sense unless the firm is unable to achieve full capital recovery on its RAB as a whole. This network stranding because, retaining assets in the RAB does not grant the ability to recover them where there

¹¹³¹ Type I and II errors are conventionally used in statistical analysis. The terms Type I and II applied to classify different asymmetric risks appear to have been introduced into New Zealand economic regulation by the WACC expert panel in 2008. See Franks, Lally and Myers “Recommendation to the New Zealand Commerce Commission on an Appropriate Cost of Capital Methodology”, page 37.

¹¹³² A prominent example in another context would be the assets used to produce the camera film (eg Kodak).

are insufficient end-users to generate the revenue required to achieve financial capital maintenance (FCM) on the overall network.

6.999.4 **Sunk and incremental assets:** ‘sunk’ assets are those that are in place prior to implementation date – regardless of whether they are used or not – and have no alternative economic use. An ‘incremental’ connection asset is one that has not been deployed by that date, and so there is potentially more of an option of whether, how and when to deploy it.

6.999.5 **Market:** ‘market’ is used to indicate a product, service or geographic segmentation for which we might recommend deregulation.

6.1000 We use the term ‘stranding risk’ to refer to asset and/or network stranding.

6.1001 Our emerging view was that we did not consider any *ex-ante* compensation was required for Type I catastrophic risk given the potential for appropriate *ex-post* compensation mechanisms to be developed as part of the PQ path.¹¹³³ We received no material evidence on this topic in the lead up to our draft decisions, and so we maintained this position in the draft decisions. We subsequently received a submission from Unison on our draft decisions which supported *ex-ante* compensation for Type I risks instead. We discuss this submission and our reasons for maintaining our position in paras 6.1014 to 6.1021.

6.1002 Our emerging view and draft decision on Type II risks of asset stranding was that this was potentially material and there are several options for how to mitigate and/or compensate for this risk.¹¹³⁴ We received substantive submissions and cross-submissions on this issue. The characteristics of telecommunications markets explain why this issue may be more pronounced than for other sectors we regulate.

6.1003 Telecommunications services are subject to significant technological change which may give rise to new technologies in competition with regulated FFLAS. The contiguous geography of the different regulated FFLAS networks may also give rise to competition (or overbuild) between these networks. The scope for possible competition is reflected in the Act where we are required, before the start of each regulatory period (except the first regulatory period), to consider whether there are reasonable grounds to start a review of how regulated FFLAS is regulated under Part 6 of the Act.¹¹³⁵ This potential for competition combined with PQ regulation

¹¹³³ Commerce Commission “Fibre regulation emerging views: Technical paper” (21 May 2019), paragraph 550.2.

¹¹³⁴ Commerce Commission “Fibre regulation emerging views: Technical paper” (21 May 2019), paragraph 550.3.

¹¹³⁵ Section 210(3).

constraining the ability of firms to earn an above-normal profit in the short-run increases the likelihood that firms face asymmetric stranding risks.

Summary of submissions on our emerging view on asset stranding risk

6.1004 Chorus, Enable and Ultrafast were supportive of an adjustment to recognise asset stranding risk.¹¹³⁶ Chorus was also supportive of the resultant cash flows being held in a special purpose account (called an ESCROW) and released only if a stranding event occurs.¹¹³⁷

6.1005 Oxera (on behalf of Chorus) presented a ‘fair bet’ method to calculate an adjustment to the WACC.¹¹³⁸ Oxera suggested the fair bet adjustment addresses the risk that when regulation is introduced after an investment has been made, the returns that regulated providers may otherwise have made from their investment will be truncated.

6.1006 Investment analysts supported recognition of asset stranding risk through an adjustment to the WACC.¹¹³⁹

6.1007 Retailers were sceptical on the need for any additional allowance for asset stranding. Trustpower presented a model that suggested that the ability to recoup an investment may vary over time but will still, nonetheless, be recoverable. Trustpower submitted that the regulated provider’s position with respect to wireless technologies will change over time as the fibre network is upgraded and, in these circumstances, it will be difficult to know if assets are really stranded. Link Economics for Trustpower noted that the government subsidy will give the regulated providers a cost advantage against competitors and a consequential ability to earn above-normal profits in the event of competition (if deregulation occurs). Spark submitted the demand risk is overstated. It expects to see growth across both mobile and fixed line networks and drew attention to rating agency and analyst reports comparing Chorus to a utility in terms of risk.

6.1008 The ENA supported an adjustment to recognise asset stranding risk and suggested not indexing the RAB as a possible method of dealing with this risk.¹¹⁴⁰

¹¹³⁶ Enable Networks and Ultrafast Fibre “Submission on NZCC Fibre Regulation Emerging Views: Technical Paper” (July 2019), paragraph 5.6.

¹¹³⁷ Chorus, “Submission in response to the Commerce Commission’s fibre regulation emerging views dated 21 May 2019” (July 2019), paragraph 50.2

¹¹³⁸ Oxera “Compensation for asymmetric Type 2 risks: Applying the fair bet principle in the new regulatory framework for fibre in New Zealand, prepared for Chorus” (July 2019).

¹¹³⁹ Black Crane Investment Management Limited, Investor Mutual Ltd, L1 Capital Pty Ltd.

¹¹⁴⁰ Electricity Networks Association “Fibre IMs: emerging views, submission to the Commerce Commission” (16 July 2019).

6.1009 These stakeholder positions remained largely unchanged in submissions to our draft decisions.¹¹⁴¹ We respond to the key submission points in the relevant sections throughout this chapter.

Rationale for decision

No ex-ante compensation IM is required for Type I asymmetric risks

6.1010 For Type I asymmetric risks, the risk is best addressed by the ability for reconsideration, if required, of the PQ path following a catastrophic event.¹¹⁴² Any destroyed assets would remain in the RAB, and additional costs would be considered in any reconsideration of the PQ path.

6.1011 Firms in competitive markets tend to insure against a significant portion of the costs associated with Type I events, and these insurance costs are included in the opex allowance that informs the revenue path. Further, we must, in calculating the maximum revenues that may be recovered by a regulated provider, apply a wash-up mechanism for each regulatory period that provides for over-recovery or under-recovery of revenue by the regulated provider during the previous regulatory period.¹¹⁴³ This wash-up mechanism significantly—but not necessarily fully—mitigates the associated demand risk including as a result of a catastrophic event.

6.1012 Therefore, for the purposes of regulated providers subject to PQ, our final decision is to make no allowance within the IMs for Type I asymmetric risks but to address such risks through the price path, including through the use of the rules and processes IM re-opener provisions.

6.1013 Similarly, for the purposes of regulated providers subject only to ID regulation, we consider that nothing is required within the IMs to deal with Type I asymmetric risks.

6.1014 Unison made the main submission to our draft decisions on this issue, and recommended that:¹¹⁴⁴

The Commission include a self-insurance premium in Chorus' cost base to enable a much more efficient method of compensating Chorus for risks of Type I events.

¹¹⁴¹ Commerce Commission “Fibre input methodologies – Draft decision paper” (19 November 2019).

¹¹⁴² The reopener for catastrophic risk is governed by the regulatory rules and processes IM – see discussion below from paragraph 9.87.

¹¹⁴³ Telecommunications Act 2001, s 196. Note that s 196(3) sets out that we must apply a wash-up mechanism for every regulatory period (except the first) that starts before the ‘reset date’. The process for the Governor-General to declare a reset date is set out in s 225.

¹¹⁴⁴ Unison “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 4.

The Commission's assessment of adequate compensation for Type II events considers the interaction with the likelihood of Type I events and the challenges of recovering the costs of a Type I event in the long-term presence of the potential for asset stranding.

6.1015 Unison recommends *ex-ante* compensation for Type I asymmetric risks. We note that as part of our scrutiny of expenditure proposals and setting of the PQ path, we would consider the efficient costs of insurance against some of the costs of these events.

6.1016 We consider that providing *ex-post* compensation for (some of) the uninsured costs of Type I asymmetric events better meets the purpose of Part 6. As discussed below, this is mainly because providing *ex-ante* compensation for potential costs is likely to result in over-compensation.¹¹⁴⁵

6.1017 The main considerations for and against providing this compensation *ex-post* include:

6.1017.1 It avoids some of the difficulties associated with *ex-ante* compensation, which is likely to result in over-compensation. Dr Lally has advised on this issue previously:¹¹⁴⁶

Ex-ante compensation suffers from the difficulty that it is simply impossible to know what the appropriate level should be. Thus, to ensure investment is forthcoming, one must err on the generous side. Even this may not be enough. If an extreme asymmetric event occurs to the extent that the *ex-ante* compensation received up until that time is insufficient to cover it, the regulated business is liable to claim that the *ex-ante* compensation should be raised. By contrast, if the asymmetric events do not occur to the extent envisaged, the regulated business will remain silent. So, even if the allowance is appropriate, there will still be a bias towards subsequent increases. To draw an analogy, when governments choose to compensate farmers for extreme weather conditions, they do so *ex-post* rather than *ex-ante* for the reasons just noted.

6.1017.2 The costs of the risk eventuating are potentially very material and may exceed the quantum of any insured costs. Therefore, it is likely that *ex-post* compensation will be required regardless of whether *ex-ante* compensation was already provided. This is because the essential nature of the service might make it difficult for the regulator to ignore the difficult *ex-post* circumstances. Further, in those circumstances (eg after a catastrophic event occurs), it may be in the long-term benefit of end-users that *ex-post* compensation is provided.

¹¹⁴⁵ We note here that regulation should not be a panacea for all unexpected events. Firms operating in competitive markets are unlikely to fully insure all of their risk exposure. See: Froot, K. A., The Financing of Catastrophe Risk, NBER Project Report Series, University of Chicago Press: Chicago & London, 1999, p. 3.

¹¹⁴⁶ See Attachment F.

6.1017.3 Ex post compensation raises the risk of moral hazard, whereby the regulated firm will lack incentives to avoid or mitigate the risk where they know they will be compensated. We are less concerned with moral hazard with Type 1 asymmetric risks than with Type II asymmetric risks. This is because there is less scope to influence the probability of the event happening (eg earthquake or pandemic), although it is possible to invest and prepare in order to mitigate the consequences. We can mitigate the risk of under-preparation by ensuring the regulated providers are exposed to at least some of the costs of Type I risks materialising (eg requiring Orion to bear some of the revenue losses following the Christchurch earthquakes).¹¹⁴⁷ Creating this expectation should encourage regulated providers to spend efficiently *ex-ante* to prepare for such an eventuality and not fully rely on an *ex-post* bailout.

6.1017.4 When originally setting the Part 4 IMs, we noted that in contrast to workably competitive markets, “regulators are in a unique position of being able to make *ex-post* adjustments with the benefit of hindsight.”¹¹⁴⁸ Since then, ex post compensation has been successfully tested with Orion, following the Christchurch earthquakes under Part 4 regulation.

6.1018 Unison has submitted that there exists an interdependence between the two types of asymmetric risk in the context where regulated firms may face increasing competition. In other words, the ability to provide *ex-post* compensation for a Type I event may diminish to the extent that Type II risks materialise. Providing *ex-post* compensation for Type I events may increase Type II risks (eg it may result in higher prices after the event, which may accelerate new entry of competing technologies).

6.1019 However, we note that a Type I event is less likely to impact on Type II risk for Chorus, than for more regionally concentrated businesses. Most disasters (eg, earthquakes, tsunamis) will affect a single region. Chorus’ national footprint provides some diversification and ability to spread costs more widely. For example, the

¹¹⁴⁷ Following the Christchurch earthquakes, Orion—the electricity distribution business serving the affected area—applied for a customized price-quality path in order to restore electricity distribution services. In its proposal, it sought substantial increases in expenditure, as well as recovering all the additional costs it incurred after the earthquakes and the lower-than-forecast revenues (claw-back). Our decision allowed smaller increases in expenditure and claw-back than originally sought. In relation to claw-back, we considered that consumers should not bear all the risks and costs associated with the earthquakes. One key reason was that doing otherwise would create a moral hazard, whereby a supplier may take a risky approach to managing catastrophic risks, knowing that consumers would bear the full costs after the event if a catastrophe occurs. See Commerce Commission “Setting the customized price-quality path for Orion New Zealand Limited – Final reasons paper” (29 November 2013).

¹¹⁴⁸ Commerce Commission “Input Methodologies (electricity distribution and gas pipeline services) - reasons paper” (December 2010), paragraph H12.7.

earthquakes in Christchurch had a much more significant impact on Orion than on Transpower. The exception is for events that have a nationwide effect, such as a pandemic or cyberattack.¹¹⁴⁹

6.1020 We consider that this interaction is best reflected through the level of any *ex-ante* allowance for Type II asymmetric risk (ie, is one of the considerations for setting the level of the allowance).

6.1021 Despite the potential drawback highlighted by Unison, on balance, we consider that maintaining our draft decision to provide *ex-post* compensation for Type I asymmetric risks is likely to best promote the purpose of Part 6.

Upfront compensation for Type II asymmetric risks is warranted for PQ regulated providers

6.1022 For Type II asymmetric risk, our final decision allows for stranding risk to be mitigated by allowing regulated providers to retain some stranded assets in the RAB, allowing regulated providers to reduce asset lives or provide for an alternative depreciation path, as well as by providing compensation through a modest *ex-ante* allowance. The main factors which draw us to this conclusion are.

6.1022.1 We consider there is some risk that the options of retaining assets in the RAB (with the exclusion of deregulated assets), shortening asset lives or adopting an alternative depreciation path may fail to sufficiently mitigate stranding risk and provide an expectation of normal profit. This would not best promote the outcome in s 162(a) or be to the overall benefit of end-users.

6.1022.2 The clear allocation of some asset stranding risk to regulated providers will protect end-users, to some extent, from price shocks in the future and promote efficiency consistent with s 162(b). The allocation of this risk to providers implies some element of *ex-ante* compensation.

6.1023 This decision remains unchanged from our draft decision.

6.1024 Submissions on our draft decisions generally agreed with exposing regulated providers to some stranding risk, and made the following points.

¹¹⁴⁹ The nature of the event might determine whether the event represents a materialisation of a Type I risk specifically for FFLAS providers (eg, Covid-19 did not, but a cyberattack could, and the effect might be very different for other industries).

6.1024.1 Chorus supported bearing some of the stranding risk through deregulation, and the combined risk mitigation provided by retaining unused assets and depreciation flexibility.¹¹⁵⁰

6.1024.2 Enable and Ultrafast submitted that they support the proposal for LFCs subject to ID regulation to manage stranding risk with mechanisms such as alternative depreciation.

6.1024.3 RSPs' views can broadly be summarised as agreeing with the allocation of stranding risk to regulated providers, noting that Chorus is best placed to manage stranding risk as it will determine pricing to a significant extent, and drive the pace of innovation (Spark). Furthermore, some argue for greater risk exposure, achieved via greater removal of unused assets from the RAB, not just in cases of deregulation (2degrees, Vodafone).

6.1025 We respond to RSPs' submissions that the regime should expose Chorus to greater stranding risk (via removal of unused assets from the RAB) in paragraphs 6.1088 to 6.1099.

6.1026 L1 Capital noted that Dr Lally appears to support the view that consumers are better placed to bear stranding risk (in attachment H of our draft decisions, also reproduced in attachment F in this document). We do not agree with L1 Capital's interpretation of Dr Lally's arguments in the attachment. Our interpretation of Dr Lally's discussion is that he does not clearly favour either firms or consumers bearing the risk. He discusses the pros and cons of each approach and concludes with "allowances are clearly warranted in principle for certain types of asymmetric risks... Both *ex-post* and *ex-ante* allowances have drawbacks."¹¹⁵¹

No ex-ante compensation for Type II asymmetric risks within the IM is required for regulated providers subject only to ID regulation

6.1027 We recognise that asset stranding risk may be material, and this may be true for regulated providers subject only to ID regulation. It is open to such providers to publish information indicating how they have accounted for asset stranding risk in their cash flows and evidence they have to support this. We may also require the public disclosure of such information if we consider that it would promote the purpose of ID regulation under s 186. The purpose of ID regulation is to ensure that

¹¹⁵⁰ Chorus "Submission on Fibre input methodologies: Draft decision – reasons paper dated 19 November 2019 and Draft fibre input methodologies determination 2020 dated 11 December 2019" (30 January 2020), page 68.

¹¹⁵¹ See paragraph F6 in Attachment F.

sufficient information is readily available to interested persons to assess whether the purpose of Part 6 is being met.¹¹⁵²

6.1028 We consider that it is appropriate for ID regulation to give regulated providers greater freedom as to how they approach the management of Type II risks rather than this being laid out in the IMs.

6.1029 Consequently, our final decision is that nothing is required in the IMs to deal with asset stranding risk for the purposes of ID regulation. We consider that this decision best gives effect to s 186 in allowing interested parties to analyse the information and reach conclusions as to how each ID regulated provider is balancing the Part 6 purposes at s 162(a) and (d).

6.1030 This decision remains unchanged from our draft decision.

6.1031 Enable and Ultrafast submitted that they support the proposal for LFCs subject only to ID regulation to manage stranding risk with mechanisms such as alternative depreciation. They also noted that the *ex-ante* allowance does not form part of the IMs that apply to ID regulation. Therefore, they noted they will compensate bearing this risk by targeting higher returns.

6.1032 LFCs' submissions do not propose a decision change. We note that targeting higher returns seems consistent with regulated providers bearing the risk. When assessing their target returns, the question will be whether the higher targeted returns are commensurate to the risk each LFC is bearing. Our decision with regard to Chorus provides some guidance.

Material asset stranding risk requires compensation

6.1033 Compensation is only required for a risk when the risk is both asymmetric and material.¹¹⁵³ When exposed to material asymmetric risk, regulated providers may not have an *ex-ante* expectation of earning a normal return which would be contrary to our economic principle of *ex-ante* real FCM and be to the detriment of the outcome in s 162(a) of regulated providers having incentives to invest.

The problem we are trying to fix – stranding risk

6.1034 Stranding risk is a business risk for Chorus and the other LFCs. If demand for regulated FFLAS falls away because end-users prefer a competitor's service that makes use of an alternative technology or are overbuilt by a rival provider of

¹¹⁵² Telecommunications Act 2001, s 186.

¹¹⁵³ A symmetric risk does not require compensation because the firm can *expect* to earn a normal return (ie, the probability of earning above-normal returns of a certain magnitude is the same as the probability of earning below-normal returns of the same magnitude). Since our economic principle is to provide an *expectation* of normal returns, no additional compensation is required to provide that expectation.

regulated FFLAS, then the full amount invested in providing that regulated FFLAS may not be recoverable in the long term. In these circumstances, the value of the firm will reduce because the expected revenue from selling the regulated FFLAS will no longer be there.

6.1035 Stranding risk is normally—but not always—non-systematic. This means that our cost of capital estimate is unlikely to compensate Chorus for stranding risk. And if it did, it is likely to compensate for only a small fraction of the risk.

6.1036 In our context, the main stranding risk appears related to competition linked to technological change, which is not normally considered systematic. However, we cannot discard that there may be a small systematic component.

6.1037 Stranding risk is normally non-systematic because the risk can be managed by investors holding a diversified portfolio of assets. If an investor is concerned about a regulated FFLAS becoming stranded by 5G technology, the investor can hedge (although not necessarily fully) against this risk by investing in a competing firm whose service offerings are based on 5G technology. The CAPM assumes that investors act in this way, and therefore, the cost of equity that is derived from the CAPM does not normally compensate for non-systematic stranding risk.

6.1038 However, stranding risk can possibly have a systematic component when the drivers for stranding risk have some correlation with the overall market.¹¹⁵⁴ In this case, the firms in the sample set we use to calculate the asset beta would also face stranding risk, and this would be captured in our estimate of the asset beta for regulated FFLAS (ie in this case, the cost of equity that is derived from the CAPM would provide some compensation for stranding risk).¹¹⁵⁵

6.1039 A hypothetical example here would be that demand for FFLAS is correlated to the overall market and wider economy (eg cheaper or lower quality alternatives to FFLAS (perhaps 5G) increases as a result of an economic downturn). We have not seen evidence of this dynamic.

6.1040 Therefore, we do not know for certain what proportion of the stranding risk is already compensated by our cost of capital estimate. However, since the main source of stranding risk is competition linked to technological development, which is

¹¹⁵⁴ We note that the potential for, or actual competition and impact of technological change is common to the telecommunications industry.

¹¹⁵⁵ In our review of the Part 4 IMs we considered that stranding risk for gas pipeline businesses was at least partly systematic, and therefore we provided an uplift of 0.05 to the asset beta to compensate for that risk. See Commerce Commission “Input Methodologies review decisions – Topic paper 4: Cost of capital issues” (20 December 2016), paragraphs 339 to 457

normally non-systematic, we consider that most—if not all—of the stranding risk is not compensated by the cost of capital.

6.1041 Stranding risk was not envisaged when regulation of natural monopoly infrastructure was designed. Regulatory regimes that apply the building block method assume that once capital expenditure is added to the RAB it will remain there until fully depreciated. This understanding provides regulated providers with a degree of certainty that they will recover their investment in what are typically very long-lived assets. A revenue cap combined with a revenue wash-up between under- and over-recoveries provides even greater certainty to regulated providers by reducing their exposure to demand variations throughout the life of the asset (if revenue is lower in one regulatory period, prices can be increased in the following regulatory period).¹¹⁵⁶

6.1042 Stranding risk can affect the way a revenue cap functions. The problem arises where regulated providers subject to PQ regulation under-recover revenue in a regulatory period and cannot generate sufficient revenue to compensate for this in the following regulatory periods, even though we allow it. This may occur where the regulated fibre service provider no longer has the market power or end-user base to do so. This creates an asymmetric risk which is not compensated for in cash flows without adjustment. As such if stranding risk is material and no *ex-ante* adjustment is provided, the revenue path will fail to provide for *ex-ante* real FCM and would harm the outcome in s 162(a) of the Act, which is to promote regulated providers having incentives to invest.

6.1043 We note that asset stranding risk from technological advances can also have positive impacts on markets and can provide significant benefits to end-users. It reveals efficient costs over time and provides incentives for incumbents to invest in the right things, at the right time and at least cost to best meet end-user demand.

6.1044 We recognise there are several features of this sector which suggests that asset stranding may be a material risk.

6.1044.1 We generally expect a greater pace of technological advancement in telecommunications than other sectors we regulate. This can lead to the prospect of competition from lower cost alternative technologies for the regulated providers.

¹¹⁵⁶ Under s 196 of the Act, we must, in calculating the maximum revenues that may be recovered by a regulated fibre service provider, apply a wash-up mechanism for each regulatory period (except the first regulatory period) that provides for any over-recovery or under-recovery of revenue by the regulated fibre service provider during the previous regulatory period. Note that s 196(3) sets out that we must apply a wash-up mechanism for every regulatory period (except the first) that starts before the ‘reset date’. The process for the Governor-General to declare a reset date is set out in s 225.

6.1044.2 The requirements for geographically consistent pricing and the potential for a prescribed maximum price for anchor services may limit the ability of regulated providers subject to PQ to achieve the revenue cap than would otherwise be the case (eg reduced ability to recover losses in one region by charging higher prices in another region).^{1157, 1158}

6.1045 However, we also recognise that there are factors relevant to regulated FFLAS which may mitigate stranding risk. The regulated providers' costs are largely sunk. This offers a degree of protection against competitive entry.¹¹⁵⁹

Evidence that asset stranding risk is material for regulated FFLAS

6.1046 Evidence of asset stranding risk from submissions to our emerging views paper was very sparse. Evidence has mainly come from analyst reports requested under s 98 of the Commerce Act 1986. No regulated providers offered any substantive evidence analysing the degree of end-user loss (or failed uptake of FFLAS) which would prevent the recoupment of their investment. Some evidence was offered by Oxera which we address later in this paper.

6.1047 The situation remained similar regarding evidence of asset stranding risk from submissions to our draft decision paper. The key points made in submissions are noted below (we discuss the material, and our response, in more detail later).

6.1047.1 NERA (for Chorus) submitted that a more plausible estimate for the extent of stranding is 10-20% of the RAB, with this risk being concentrated at the edge of Chorus' network. In addition, they attributed higher probabilities of stranding across most asset categories. This results in an illustrative "back of the envelope" estimate for the stranding allowance of 31 to 87 basis points.¹¹⁶⁰

6.1047.2 L1 Capital estimated that 80% of regulated revenues are at risk of being stranded with 15% to 23% chance, which they submit equates to a 140 to 210 basis points allowance.¹¹⁶¹

6.1047.3 Spark recommend that the Commission defer any decision to quantify the stranding risk until after the first regulatory period, given the

¹¹⁵⁷ Section 201.

¹¹⁵⁸ Section 198(2)(d).

¹¹⁵⁹ Martin Cave & Ingo Vogelsang "Financial capital maintenance and its role in fibre regulation in New Zealand" (21 May 2019), paragraph 3.11.

¹¹⁶⁰ NERA "Assessment of Type II asymmetric risk for Chorus' fibre network" (22 January 2020).

¹¹⁶¹ L1 Capital "Submission on Fibre input methodologies – Draft decision" (30 January 2020).

complexity and lack of key information necessary to sensibly quantify the risk.¹¹⁶²

6.1047.4 Vodafone asserted that we have not attempted to quantify the asymmetry of the risk, instead focusing on estimating the downside risk, biasing the analysis in favour of LFCs. They submitted that there is too much uncertainty in this analysis to come up with a reasonable number, and that the best estimate of the compensation must be zero.¹¹⁶³

6.1047.5 Vocus cross-submitted that, given the comments L1 Capital made, they would expect to see substantial ‘asset flight’ with L1 Capital exiting or downscaling its investment in Chorus. Instead L1 Capital has expressed bullish views about its investment in Chorus including that Chorus has been “extremely undervalued” and it “expect[s] dividends to accelerate over the next five years”. Chorus has been one of the fund's largest investments, and L1 Capital has sought and gained clearance from the Crown to boost its stake in Chorus.¹¹⁶⁴

6.1048 In our draft decision, we considered that there is some evidence that new technology (most notably 5G deployment) poses a risk to Chorus, as explained below.

6.1048.1 Investment analyst reports on Chorus regularly note one of the main risks as being longer term substitution away from fibre broadband, in particular to fixed wireless.¹¹⁶⁵

6.1048.2 S&P notes this as a risk in their assessments of the credit rating of Chorus.¹¹⁶⁶ So reportedly does Moody's.¹¹⁶⁷

¹¹⁶² Spark “Fibre Input Methodologies: draft determination: Submission” (30 January 2020).

¹¹⁶³ Vodafone “New regulatory framework for fibre: Submission on Fibre Regulation Draft Decision – Public Version” (30 January 2020).

¹¹⁶⁴ Vocus Group “Draft Fibre Input Methodologies Determination: Submission to Commerce Commission – public version” (30 February 2020).

¹¹⁶⁵ Many also discuss fixed wireless substitution away from Chorus' copper network. For the purposes of regulated FFLAS this is not relevant other than the extent to which it is relevant to potential switching away from regulated FFLAS. For example, see Forsyth Bar, 12 March 2019, Credit Suisse, 25 February 2019, CLSA 18 January 2019, UBS 6 February 2019 and 13 June 2019.

¹¹⁶⁶ S&P Global Ratings, Chorus, 31 May 2018.

¹¹⁶⁷ One Analyst quotes Moody's as stating “A comparison of the companies shows that CNU's business risk is higher than Vector's because of greater competition and technology risk. ”, Jarden, Regulatory uncertainty to the fore again, August 2016.

6.1048.3 The original de-merger prospectus noted the risk of end-users switching away from the fibre network.¹¹⁶⁸

6.1048.4 Current levels of switching to fixed wireless services have been moderate but non-trivial. Over 188k lines are now provided through the fixed wireless service.¹¹⁶⁹ While this appears to be largely end-users switching away from the poorer quality copper broadband services, it may be indicative of the potential threat to regulated FFLAS from new alternative technologies.

6.1048.5 Oxera submitted evidence assessing how uptake affects the rate of return.¹¹⁷⁰ [

.] **[COI]** It shows that internal rates of return range from 6% to 14% depending on uptake and average revenue per end-user. This highlights how demand may impact on the finances of fibre networks.

6.1048.6 [

][**[COI]** .¹¹⁷¹

6.1049 In respect of Chorus, several of the investment analyst reports and rating agencies (but not all) give reasons as to why they are less concerned about this risk. However, they devote pages to analysing this problem, suggesting it is significant even if it is not high. The weight of evidence is more suggestive of the risk being significant than not.¹¹⁷²

6.1050 The submission from Trustpower, and supported by Vodafone New Zealand Limited, pointed to the prospect of apparently stranded fibre assets in the future being

¹¹⁶⁸ For example, see page 20 “Increasing rates of fixed-to-mobile substitution and fixed access competition.” is listed as a key risk to the new business, and section 9.25, TelecomNZ, Share in two journeys Your opportunity to own interests in two leading New Zealand telecommunications companies. Demerger of Chorus Limited by Telecom Corporation of New Zealand Limited, 13 September 2011.

¹¹⁶⁹ Commerce Commission “Annual Telecommunications Monitoring Report: 2019 Key Facts” (12 March 2020), page 4.

¹¹⁷⁰ This was based on answers to Select Committee questions.

¹¹⁷¹ []

[COI]

¹¹⁷² For example, see Forsyth Barr, 12 March 2019 and UBS 6 February 2019 and 13 June 2019 and SP Global, Chorus Ltd, May 2018

subsequently found to not be stranded with upgrades.¹¹⁷³ ¹¹⁷⁴ We also recognise there is some possibility that the economic life of the assets may be longer than first envisaged. There is the historic example of copper networks whose life was extended by the arrival of broadband technologies.

6.1051 In its submission to our draft decision, NERA (for Chorus) argued that we appear to “have understated the views of the investment community that the risk of fixed-mobile substitution is low.”¹¹⁷⁵ We understand that what NERA means is that the investment community thinks that the risk of fixed-mobile substitution is higher than what our reading of the views of the investment community suggests.

6.1052 We accept the evidence base is not conclusive. Nonetheless we continue to believe the evidence before us as a whole, is more supportive of asset stranding being a material but modest risk for Chorus.

6.1053 WIK submitted that the original business plans (for LFCs) were predicated on 60% take-up by 2020 and close to 100 % take-up over time and that fixed wireless substitution and deployment of VDSL2 by Chorus in the other LFC UFB areas may undermine this.¹¹⁷⁶ In respect of WIK’s points, the risk of fixed wireless substitution was acknowledged at the time of the UFB contracts as was the knowledge of the upgradeability of Chorus’ already sunk copper network the other LFCs were overbuilding.¹¹⁷⁷ Furthermore[

.¹¹⁷⁸] [COI]

6.1054 It is generally expected that a sunk network, which is being overbuilt, is likely to respond to that competition to maximise the residual value of that network. We also note that observations that the original take-up targets were not being met does not necessarily imply asset stranding; this depends on whether take-up is sufficient to generate revenues which cover the cost of investment.

6.1055 It is less clear the evidence is supportive of there being an asymmetric stranding risk for the LFCs other than Chorus which requires an adjustment to the regime. Asset

¹¹⁷³ Trustpower “Trustpower Submission: Fibre Regulation Emerging Views” (July 2019), paragraph 3.75

¹¹⁷⁴ Vodafone “New regulatory framework for fibre: Cross-submission on Fibre Regulation Emerging Views – Cost of Capital” (August 2019), pages 5 to 9.

¹¹⁷⁵ NERA “Assessment of Type II asymmetric risk for Chorus’ fibre network” (22 January 2020), para 68(b).

¹¹⁷⁶ WIK-Consult “In response to the Commerce Commission’s “Fibre regulation emerging views: Technical Paper” of 23 May 2019” (10 July 2019), paragraph 55.

¹¹⁷⁷ Telecom NZ, Share in two journeys, September 2011, Independent Expert’s report (Grant Samuel), who noted the availability of VDSL2 at pages 58, 68 and 99.

¹¹⁷⁸ [

] [COI]

stranding is a risk with an investment of this nature. The LFCs agreed to roll out the networks in contract with the Crown. Given they are not subject to PQ, the upside to FFLAS providers subject to ID regulation is not directly capped. Given our overall final decision that nothing is required within the IMs for regulated providers subject to ID regulation, which we explain in more depth later,¹¹⁷⁹ we do not need to reach a definitive view on this issue at this time but we note that the potential for asset stranding is one factor which can be considered when conducting *ex-post* profitability analysis for the purposes of ID regulation.

We do not consider the Oxera analysis is relevant for this decision

6.1056 Chorus has submitted a report from Oxera on its ‘fair bet’ analysis. This report contains an estimation method covering stranding risk and provides an estimated uplift to the WACC of between [] **[COI]** basis points to compensate for the risks Oxera identifies. This is a fundamentally different approach to the approach we have adopted. It assumes the firm is exposed to both more upside and downside risk than our approach and it assesses the risks at the time investment was committed rather than current risks.

6.1057 Our final decision is that Oxera’s fair bet approach is incompatible with the regime for the following reasons.

6.1057.1 In order for investors to be exposed to the full upside and downside risk at the time they committed to the investment, we could not add any accumulated unrecovered returns over the pre-implementation period to the RAB as is required by s 177.¹¹⁸⁰ Rather any revenue shortfall over this period would be borne by investors in the expectation of future revenues which would compensate for this.

6.1057.2 We could not have a wash-up mechanism associated with the revenue cap as is required by s 196. Again, to the extent regulated providers could not achieve revenues up to the cap, that risk would be borne by investors.¹¹⁸¹

6.1057.3 The prior-investment should be subject to a comprehensive efficiency assessment. Where subsequent investment is required to amend faulty installations for example, that should not be recouped from end-users and

¹¹⁷⁹ Paragraphs 6.1236 to 6.1242.

¹¹⁸⁰ Under s 177(3) of the Act, in determining the financial losses under section 177(2) of the Act, we must take into account any accumulated unrecovered returns on investment made by a regulated fibre service provider under the UFB initiative.

¹¹⁸¹ A similar point is made in Martin Cave & Ingo Vogelsang “Financial capital maintenance and its role in fibre regulation in New Zealand” (21 May 2019), paragraph 1.13.

where investment occurred at less than efficient cost, the cost should be pared back to the efficient level before entering the RAB.

6.1058 In summary, the regulatory regime provides some significant caps to the downside which would need to be removed to give effect to Oxera's fair bet approach. This is not an option before us as significant elements of our approach are required under the Act. Other elements of Oxera's method raise significant practical difficulties to implement. For example, translating the existing downside caps implicit in the regime into the distribution of potential returns to the regulated providers would be complex.¹¹⁸²

6.1059 It is also notable that much of the information used to estimate the 'fair bet' risk for

Chorus [

^{1183]} [COI] [

^{1184]} [COI] Consequently,

even if this approach was preferred, it could not be implemented as envisaged with the information before us. In this respect we note

[

^{1185]} [COI] Applying the Oxera methodology in the light of this evidence would suggest a very different outcome to the one contained in the Oxera report.

6.1060 Oxera have also referred to decisions by Ofcom which have implemented a similar adjustment. We note these are very different examples where the investments Ofcom were considering were not subject to government funding or they excluded investment in areas which received government subsidy.¹¹⁸⁶ In particular, they noted:¹¹⁸⁷

¹¹⁸² This may not just be a matter of deciding by how much returns are capped on the downside but may lead to non-standard distributions, for example asset stranding may represent the tail of the distribution and may not be entirely capped.

¹¹⁸³ [] [COI]

¹¹⁸⁴ [] [COI]

¹¹⁸⁵ []

] [COI]

¹¹⁸⁶ Ofcom "WLA Market Review: Statement" (March 2018), paragraph A6.54

The risks BT faces with BDUK investments were therefore very different to BT's investment in the commercial area, and were the outcome of its negotiations with local authorities. We consider BT should have considered and taken account of the risks involved with its investment in the BDUK areas in its negotiations and contracts with local authorities, **including taking account of possible future charge controls on VULA**. We therefore do not consider the BDUK areas are relevant to our consideration of the fair bet for the commercial FTTC investments, and so have only considered the returns on BT's FTTC commercial investment. [Our emphasis]

6.1061 We also note that future regulation was clearly a possibility at the time of the investment. As such it would be factored into investors' expectations of future returns. Assuming that investors did not expect regulation, and then adjusting regulation to compensate investors for this assumed expectation, may not best promote the outcome in s 162(d) of regulated providers being limited in their ability to extract excessive profits.

6.1062 Lastly, we consider that the decision by Chorus to structurally separate and contract with the Crown to roll out fibre is inextricably linked to the alternative of a competing government subsidised network. The original investors were the shareholders of Telecom who agreed to this structural separation and investment and subsequently were allocated shares in Chorus. Our method isolates the treatment of the regulated FFLAS investment from the company as a whole. We do not believe the Oxera method can achieve this given the historical background.

6.1063 In its submission, Chorus summarised and briefly responded to our reasons for not considering Oxera's analysis as relevant for this decision.¹¹⁸⁸ We agree with Chorus that the complexity of a regulatory tool should not be used as a reason not to carefully consider it. We have considered Oxera's 'fair bet' analysis and concluded, for the reasons explained above, that it is not relevant for our specific regulatory context. We respond to the point about risk allocation and compensation in the pre-implementation period in paragraphs 6.1152 to 6.1160.

Potential solutions for compensating for asset stranding risk

6.1064 Several submitters on our emerging views paper considered that the WACC was the appropriate mechanism for compensating stranding risk, either submitting it is already compensated for through our asset beta estimation,¹¹⁸⁹ or that the WACC should be increased to reflect higher asset stranding risk than the comparator set.¹¹⁹⁰ We do not consider that the main stranding risk here is a systematic risk, and therefore the WACC is unlikely to compensate Chorus for it. And if it did, it is likely to

¹¹⁸⁸ Chorus "Submission on Fibre input methodologies: Draft decision" (30 January 2020), paras 272-276.

¹¹⁸⁹ For example, see Trustpower "Fibre emerging views submission" (18 July 2019), paragraph 3.7.5

¹¹⁹⁰ For example, see Castalia "Rate of Return for Information Disclosure Profitability Monitoring of Local Fibre Companies" (August 2019), page 4.

compensate for only a small fraction of the risk, as we explained in paragraphs 6.1035 to 6.1040.

6.1065 There are several options for compensating for non-systematic stranding risk. The main principle that underlies these options is that any additional revenue is provided only if there is an expectation that there will be an equivalent reduction in revenue at some point in the future. This is the *ex-ante* expectation of NPV neutrality, which is applied by ensuring the present value of the expected additional revenue is exactly offset by the present value of the expected reduction in revenue in the future. Hence any upfront compensation goes hand in hand with an expected reduction in revenue which occurs when assets are removed (or written off) from the asset base due to a stranding event (or cannot otherwise be recovered). This is a matter of assessing the economic value of the RAB, rather than individual assets.

6.1066 We can broadly split methods to address asset stranding into *ex-post* mechanisms, mitigation mechanisms and *ex-ante* mechanisms.¹¹⁹¹

Ex-post Compensation: Keeping assets in the RAB until recoulement

6.1067 Keeping assets within the RAB whether they are used or not allows for the recoulement of the investment through charges to end-users over time. In effect, in the event of stranding, future end-users compensate regulated providers for their investments in these assets, allowing them to recover a normal return on and off capital.

6.1068 The advantages of this are:

- 6.1068.1 It is straight forward, easy to implement and does not require difficult estimations.
- 6.1068.2 It reduces uncertainty within the regime.

6.1069 The disadvantages are:

- 6.1069.1 It cannot fully protect regulated providers from economic network stranding. If insufficient end-users remain on the network and are unable to pay high enough prices to allow the investment to be recouped, regulation cannot provide compensation.
- 6.1069.2 Submitters have noted this option gives regulated providers the ability to recoup costs that are greater than the costs associated with the end-users they are serving and may result in one set of end-users

¹¹⁹¹ It is possible to adopt a combination of these mechanisms (and we do).

subsidising another set of end-users.¹¹⁹² The efficiency impacts of this are muddied by the requirement for geographically consistent pricing.¹¹⁹³

6.1069.3 It allocates risks to end-users, but they may not always be best placed to manage these risks. For example, the choice of what and when to invest in new assets is (largely) in the control of regulated providers subject to any capital expenditure approval rules we implement.

Mitigation by shortening asset lives

6.1070 If we know an asset will be stranded in five years' time, bringing depreciation forward, by reducing asset lives to five years, can allow full recoupment and eliminates the stranding risk. In practice, neither we nor the regulated providers know with certainty the extent of risk or the timing of the risk. However, as a general principle, bringing cash flows forward mitigates this risk, and may do so to the point the risk is no longer material. This can be achieved through:

6.1070.1 shortening asset lives (and therefore, shortening the depreciation profile);

6.1070.2 changing the depreciation profile (and hence reducing the asset value subject to stranding risk); and

6.1070.3 not indexing the RAB which acts similarly to adjusting the depreciation profile and while highlighted by submitters (ENA and Vector Limited) and is a blunt option and subsumed by the depreciation profile.¹¹⁹⁴

6.1071 These methods are in principle NPV-neutral to regulated providers and end-users in the event no asset stranding occurs. Shortening asset lives is the most straight forward and natural way to do this. The depreciation profile is usually more focussed on smoothing prices but can still be relevant as it can reduce the revenue at risk by front-loading depreciation.

6.1072 The main problem with these methods is they may not sufficiently compensate regulated providers for the risk of asset stranding (and therefore may not achieve real FCM) where insufficient recovery of capital can be brought forward in time.

¹¹⁹² For example, see ENA “Fibre emerging views submission” (18 July 2019), page 4; Enable and Ultrafast “Fibre Emerging Views cross-submission” (31 July 2019), paras 3.6 to 3.10

¹¹⁹³ Section 201.

¹¹⁹⁴ ENA “Fibre IMs: emerging views” (July 2019); and Vector “Submission to Commerce Commission on the Fibre Regulation Emerging Views Paper” (July 2019).

Ex-ante mechanisms

6.1073 In principle an *ex-ante* mechanism examines the probability adjusted cash flows of the business and calculates the additional cash flow which provides the expectation of a normal return and provides for *ex-ante* NPV neutrality.

6.1074 We have decided in this process to adopt a discount rate method to calculate this. The allowance results in higher cash flows for each PQ path.

6.1075 Of the submitters who support an adjustment for asset stranding risk, most support was for an *ex-ante* adjustment to the WACC.¹¹⁹⁵ Our view is that it should not form part of the WACC because it is not appropriate to treat the stranding risk we are dealing with in this context as if it was systematic. Including the adjustment in the WACC may lead interested persons to think that we are treating stranding risk as a systematic risk and create confusion. Instead, the compensation could be provided for explicitly in cash flows.

6.1076 The main advantages of this approach are that by providing clear upfront compensation, it can do the following.

6.1076.1 Address the risk of price shocks to end-users if asset stranding occurs. For example, where asset stranding unexpectedly becomes imminent regulated providers may seek to significantly accelerate the depreciation of those assets over a compressed period of time. Alternatively, where significant assets are stranded the regulated providers may seek to recover those amounts from residual end-users.

6.1076.2 Allocate some or all of the risk of asset stranding to regulated providers. This has better incentive properties given the firms have more control of this risk than end-users – for further incremental investment they choose what to invest in and when.¹¹⁹⁶

6.1076.3 Maintaining regulated fibre service suppliers' exposure to this risk places financial incentives on them to control it including, for example, promoting further uptake of regulated FFLAS to gain incumbency advantage.¹¹⁹⁷

¹¹⁹⁵ For example, Chorus, Enable and Ultrafast, L1 Capital, NorthPower Fibre.

¹¹⁹⁶ Guthrie and Evans "Asset Stranding is Inevitable: Implications for Optimal Regulatory Design, New Zealand Institute for Competition and Regulation" (November 2003) make similar points as does Simshauser et al, and Lally in terms of the moral hazard risk of *ex post* compensation.

¹¹⁹⁷ We note several analyst reports have noted that Chorus' drive for early uptake of fibre (despite losing copper revenue) is that once on fibre, end-users are less likely to switch to an alternative technology like fixed wireless.

6.1077 The main disadvantages of adding an *ex-ante* allowance to revenue are as follows.

- 6.1077.1 If stranding does not occur, end-users pay up front but get no corresponding reduction in revenue in future (as compared to shortening asset lives, although noting in this alternative we would expect end-users to pay materially more upfront).¹¹⁹⁸ This is true with any insurance.
- 6.1077.2 The allowance is difficult to calculate, and mis-estimation may lead to over-compensation thereby not promoting the outcome in s 162(d) of the Act of regulated providers being limited in their ability to extract excessive profits.¹¹⁹⁹
- 6.1077.3 We have appended previous advice from Dr Lally (see Attachment F) which explains the disadvantages further.
- 6.1077.4 It requires a process and ability to identify and exclude stranded assets from the RAB depending on the extent of asset stranding risk being compensated for.

Sharing mechanisms

6.1078 Simshauser has suggested ring-fencing stranded assets and placing them under a reduced compensation scheme where they can be reintroduced to full recovery at some point in the future if they provide value.¹²⁰⁰ This shares the asset stranding risk between firms and end-users. It would however be complicated to introduce and manage. In sum we consider that this would not be practical. We do not consider this option further. We prefer providing some *ex-ante* compensation

We prefer providing some *ex-ante* compensation

6.1079 In deciding which methodology is likely to give best effect to the purpose statement of Part 6, we note it is not one particular methodology alone but a combination including some *ex-ante* compensation which we believe best gives, or is likely to best give effect to the purpose of Part 6 in s 162.

¹¹⁹⁸ Shortening asset lives has a larger effect on the unit prices end-users pay because it compresses the recovery of the investment entirely into the window prior to when stranding is expected. In contrast an *ex-ante* allowance provides recoupment, partly, by promising greater returns in the event asset stranding does not occur. This spreads the recoupment across the windows before and after the expected timing of stranding and thereby is expected to reduce the unit price early on in comparison to asset life shortening.

¹¹⁹⁹ Spark “Fibre regulation emerging views: WACC – Cross-submission” (9 August 2019), paragraph 50.

¹²⁰⁰ See Simshauser “Monopoly regulation, discontinuity & stranded assets” 66(2017): 384-398 Energy Economics.

Retaining all assets within the RAB will not be effective or be likely to best give effect to s 162

6.1080 The regime will always embed an element of retaining assets which are no longer used and useful within the RAB. Not all assets that fail before reaching the end of their expected life or which were constructed or acquired at an inefficient cost can be identified.¹²⁰¹ Attempting to do so would likely be very complicated, contentious, and suffer significantly from the asymmetry of information between us and the regulated fibre service provider.

6.1081 Chorus has submitted that certain classes of assets should be retained in the RAB and noted such retention cannot be a complete solution to stranding risk.¹²⁰² WIK also noted this option may not fully resolve the risk.¹²⁰³

6.1082 Predictability of changes to the RAB is one of the main factors which provides certainty to investors in regulated fibre assets. The greater the discretion to exclude assets from the RAB, the less certainty is provided. Were we to retain a large discretion to exclude assets, this may not promote the outcome in s 162(a) of regulated providers having incentives to invest.

6.1083 Furthermore, the type of asset stranding we are potentially concerned with includes economic network stranding. Here retaining assets in the RAB would not grant the ability to recover the investment in them where there are insufficient end-users to generate the revenue required.

Excluding assets associated with deregulation likely to best give effect to s 166

6.1084 Our final decision is to exclude assets associated with deregulated services from the RAB.¹²⁰⁴

6.1085 Our emerging view noted that in the event of deregulation, assets may be removed from the RAB.¹²⁰⁵ This was supported by our expert panel.¹²⁰⁶ In deregulated areas, we consider that it is beneficial to exclude assets from the RAB notwithstanding the benefits an unmodified RAB confers. Retaining these assets in the RAB has two

¹²⁰¹ In addition, s 177 provides detailed rules for the initial value of a regulated provider's fibre assets which does not take the efficiency of the investments into account.

¹²⁰² Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (July 2019), paragraph 228

¹²⁰³ WIK-consult "In response to the Commerce Commission's "Fibre regulation emerging views: Technical Paper" of 23 May 2019", paragraphs 61 and 62.

¹²⁰⁴ Section 226 provides for the regulations to describe a service with reference to any 1 or more of the following: (a) the geographic area in which the service is supplied: (b) the service's end-users: (c) the service providers who seek access to the service: (d) the technical specifications of the service: (e) any other circumstances in which the service is supplied.

¹²⁰⁵ Commerce Commission "Fibre regulation emerging views: Technical Paper" (May 2019), paragraph 605.

¹²⁰⁶ Cave & Vogelsang "Financial capital maintenance and its role in fibre regulation in New Zealand" (May 2019), paragraph 2.26.

effects we think do not best give, or are unlikely to best give, effect to the purposes in s 166.

6.1085.1 Firstly, it exposes end-users to potential price shocks. Where substantial deregulation occurs, retaining the assets in the RAB places a greater burden on the residual end-users. We do not consider that this best gives effect to the outcome in s 162(b) of regulated providers having incentives to improve efficiency, or more generally fits within the concept of workably competitive markets where a drop in a firm's demand is not expected to cause increases in price. Further, it may not promote s 162(d) because Chorus could over-recover these asset costs – via the captive end-users and potentially by using them to provide unregulated services in the deregulated market(s).

6.1085.2 Secondly, it may make regulated providers subject to PQ regulation financially less concerned about future competition when investing or expanding services and that is unlikely to best give, or be likely to be give, effect to the:

6.1085.2.1 promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services (s 166(2)(b)); or

6.1085.2.2 the outcome in s 162(b) of regulated providers having incentives to improve efficiency.

6.1086 This decision remains unchanged from the draft decision – to retain unused assets in the RAB and to remove assets from the RAB that are associated with deregulation.

6.1087 The main submissions on the draft decision are summarised below.

6.1087.1 Chorus supported retaining unused assets in the RAB, subject to deregulation, to provide Chorus with maximum flexibility (within the other constraints of the regulatory framework) to recover the investment in those assets.¹²⁰⁷

6.1087.2 Most RSPs argued for greater removal of assets from the RAB, specifically of unused assets. Vodafone submitted that since deregulation of fibre assets is “extremely unlikely” (because Chorus is likely to maintain

¹²⁰⁷ Chorus “Submission on Fibre input methodologies: Draft decision – reasons paper dated 19 November 2019 and Draft fibre input methodologies determination 2020 dated 11 December 2019” (30 January 2020)

substantial market power in the relevant markets), the risk of asset stranding applies mainly to assets that remain in the RAB.¹²⁰⁸

6.1087.3 Therefore, Vodafone submitted that “to really provide the right incentives on the LFCs to manage these assets well and respond appropriately to competitive threats they [the unused assets] must be removed from the RAB if unused.”¹²⁰⁹

6.1087.4 Vodafone also submitted that it is not acceptable to use “practical difficulties” as a reason not to remove unused assets from the RAB, and to “err in favour of LFCs simply on the basis of convenience”.¹²¹⁰

6.1087.5 Vodafone proposed the following approach for removing unused regulated assets from the RAB:¹²¹¹

Shared assets such as cabinets, feeder fibres, exchanges, and equipment at the exchange remain in the RAB until deregulated.

The LFCs report on two numbers for assets specific to individual end users (eg, the ONT and distribution fibre)

- Number deployed
- Number in use.

The difference between these two numbers is calculated (based on average cost of these assets).

A yearly re-opener is established to allow the price-quality path to be amended to reflect changes in the RAB. It is critical that this is done yearly, as some of these assets (such as the ONT), have a very short lifetime of about 3-5 years. It would be ineffective to wait until the next 3-5 year reset.

6.1088 In considering Vodafone’s proposal, the questions we face are whether it is allowed by the Act, and if it is, whether the potential benefits of the proposal (in terms of promoting the purpose of Part 6) outweigh the costs (including complexity and practicality).

6.1089 In short, this proposal is about removing the average value of unused ONTs and lead-in fibres (ie end-user-specific connection assets) from the RAB, and annually making

¹²⁰⁸ Vodafone “New regulatory framework for fibre: Submission on Fibre Regulation Draft Decision – Public Version” (30 January 2020).

¹²⁰⁹ Vodafone “New regulatory framework for fibre: Submission on Fibre Regulation Draft Decision – Public Version” (30 January 2020), page 9.

¹²¹⁰ Op. Cit. page 9.

¹²¹¹ Op. Cit. page 9.

the corresponding price path adjustment. This would have the effect of exposing Chorus to more stranding risk.

6.1090 We consider that Vodafone's proposal is unlikely to better promote the purpose of Part 6 compared to our draft decision.

6.1091 s 201 of the Act requires providers subject to PQ regulation to charge the same price for providing FFLAS that are in all material respects the same, regardless of the geographic location of the access seeker or end-user. Further, we are not allowed to do a s 210 deregulation review in the first regulatory period.

6.1092 Implementing Vodafone's proposal while complying with the Act would likely result in the stranding of assets by regulatory decision rather than as a result of market forces – detracting from s 162(a). This is because when an end-user switches away from Chorus FFLAS, Chorus would not be allowed to recover the cost of the respective connection assets, as they would be removed from the RAB. Neither would it be allowed to prevent stranding by reducing its prices in order to respond to this competition and try to win the end-user back – detracting from s 166(2)(b).

6.1093 The resulting higher stranding risk for incremental connection assets would likely result in a higher stranding allowance, other things equal.

6.1094 Implementing Vodafone's proposal in a way that promoted the purpose of Part 6 would require allowing Chorus pricing flexibility to respond to competition. The only way to do that would be to deregulate the relevant market, but we are not legally allowed to do a s 210 deregulation review in the first regulatory period.

6.1095 More broadly, in order to promote s 162(a), we need to allow Chorus the opportunity to recover the costs of sunk connection assets in order to provide FCM.¹²¹² This is what our approach in the draft decision achieves. If we were to remove unused connection assets from the RAB at regime implementation, we would have to add the corresponding value to the losses asset, effectively reintroducing it to the RAB.¹²¹³ This would increase complexity.¹²¹⁴

6.1096 Further, the values involved are likely to be very large, which detracts from the certainty the RAB is intended to provide.¹²¹⁵ We consider that this factor alone likely

¹²¹² Our regulation under Part 4 of the Commerce Act also allows electricity lines companies to recover their sunk investments where there is network bypass (eg from consumers installing solar PV and batteries).

¹²¹³ The ex-ante stranding allowance cannot cover events that have already occurred.

¹²¹⁴ Refer to paragraph 3.105 for a discussion of how we are applying s 177(1) to unused assets that are available for use when determining the initial value fibre assets.

¹²¹⁵ NERA estimated that UFB connections and layer 2 assets could account for 29% of the RAB, which could correspond to values in the \$1-2bn range.

dominates, and therefore detracts from the purpose of Part 6 in general, and the outcome in s 162(a) in particular.

6.1097 We recognise that Vodafone's proposal may have some benefits in the form of sharper incentives to improve efficiency (s 162(b)) by increasing Chorus' risk exposure. The proposal can also help limit potential excessive profits (s 162(d)) where Chorus receives a stranding allowance and some assets become unused due to competition, but deregulation is not forthcoming or is delayed. However, we consider that the costs discussed above clearly outweigh these potential benefits.

6.1098 To sum up, Vodafone's proposal may have some small benefits in terms of promoting efficiency (s 162(b)) and limiting excessive profits (s 162 (d)), but has some clearly larger costs in terms of detracting from the certainty the RAB is intended to provide (s 162(a)) and promoting competition (s 166(2)(b)). The latter requires pricing flexibility and removal of assets from the RAB to go hand in hand. Removing assets from the RAB without the pricing flexibility allowed by a s 210 deregulation review would likely strand assets and lessen competition.

6.1099 We therefore consider that our final decision to retain unused assets in the RAB better promotes the purpose of Part 6 than Vodafone's proposal.

There is a risk that shortening asset lives will not be effective

6.1100 In the context of regulated FFLAS networks, which are relatively new and are still building up their customer base, our expectation is an efficient price profile would push revenues back in time. This allows for either lower or stable prices over time as end-user numbers are built up through the transfer from the copper network to the fibre networks.

6.1101 We may also smooth revenues over two or more regulatory periods under s 197 of the Act, where in our opinion it is necessary or desirable to do so to minimise any price shocks to end-users. This may lead to an alternative depreciation profile which again would be expected to push revenue back in time. These factors will act against shortening asset lives or limit the extent to which asset lives can be shortened.

6.1102 In this respect, the role of asset lives may not be important because the accumulated unrecovered returns and wash-up to the revenue cap may 'extend' the real asset life of the value at risk. In essence, if the revenue generated does not meet the revenue cap, depreciation is 'rechurned' forward.

6.1103 However, we also recognise that this does not mean there is no role for shortening asset lives. At least one analyst has noted the current low interest rate environment creates space for cash flows to be brought forward.¹²¹⁶

6.1104 [

^{1217]} **[COI]** We understand that under GAAP they can use economic lifetimes of assets and they update these every year.

6.1105 We consider an approach that requires the regulated fibre service provider to submit justification for the depreciation method adopted, including shortening asset lives in excess of GAAP rules, is appropriate. This is because we are also proposing some additional *ex-ante* compensation and need to ensure broad consistency between the two forms of compensation.

6.1106 This process, described in more detail in the Asset Valuation section, allows greater leeway than the process for accelerated depreciation we have applied to the EDBs.

6.1106.1 As a result of the 2016 review of the IMs determined under Part 4, we introduced a mechanism in our IMs allowing distributors to apply for a discretionary net present value-neutral shortening of their remaining asset lives. This mechanism allows distributors to elect new asset lives based on the expected economic lives of their assets, rather than their physical asset lives.¹²¹⁸

6.1106.2 We introduced this IM mechanism to address the risk that a network becomes economically stranded, rather than any risk of physical asset stranding.

6.1106.3 The IMs allow for assets to stay in the RAB even though they have ceased to be used (ie, become physically stranded). Therefore, physical asset stranding is not the risk under consideration. Rather, it is the risk that the network becomes economically stranded. That is, the risk is that at some future point enough consumers elect to disconnect from EDBs' networks such that the revenue EDBs are able to recover from the remaining customer base is insufficient to allow them to fully recover their

¹²¹⁶ Jarden “Chorus: Regulatory uncertainty to the fore again” (27 August 2019).

¹²¹⁷ [

[COI]

¹²¹⁸ Commerce Commission “Input methodologies review decisions: Topic paper 3: The future impact of emerging technologies in the energy sector” (20 December 2016), paragraph 84-86.

historic capital investment (hence the title ‘risk of partial capital recovery’). This is because prices to those remaining consumers would need to rise beyond their willingness to pay given their economic alternatives (or beyond politically acceptable levels).¹²¹⁹

6.1107 We consider that a combination of retaining assets in the RAB and shortening asset lives runs a significant risk of being insufficient to compensate for stranding risk for regulated FFLAS suppliers. We therefore consider that we should also provide an *ex-ante* allowance, given the circumstances specific to the regulated fibre sector. In respect of the advice from Dr Lally reproduced in Attachment F of this document, we agree with much of his advice, but in these specific circumstances we do not consider that we can implement a pure *ex-post* compensation mechanism.

Allocating some of the risk to regulated providers will be to the benefit of end-users

6.1108 In terms of compensation mechanisms which best give effect or are likely to best give effect to the purposes in s 166, we consider an important aspect of an *ex-ante* mechanism is the risk it transfers to the regulated providers.

6.1108.1 It limits the extent of price shocks to end-users. Where significant numbers of end-users leave a fibre network, absent other mechanisms, an increasing burden of covering the costs of the fibre network fall on the remaining end-users. This implies a level of cross-subsidy between current end-users (who may switch) and those who will not. We recognise this situation is muddied by the requirement for geographically consistent pricing,¹²²⁰ but nonetheless it points to some benefits to end-users overall from an *ex-ante* allowance which transfers some of the demand risk to regulated providers. This will likely best give effect to the outcome in s 162(b) of regulated providers having incentives to improve efficiency.

6.1108.2 Clearly allocating some of the risk to regulated providers also ensures asset stranding will have a negative financial impact on them. From a forward-looking basis, this provides better incentives to manage this risk in terms of what, where and when they invest. This will likely again best give effect to the outcome in s 162(b) of regulated providers having incentives to improve efficiency.

6.1108.3 Finally, as we discuss in paragraph 6.1085.2 excluding assets associated with deregulated services from the RAB is likely to best give effect to s 166(2)(b). Ultimately, we consider that this is likely to best give

¹²¹⁹ Commerce Commission “Input methodologies review decisions: Topic paper 3: The future impact of emerging technologies in the energy sector” (20 December 2016), paragraph 84-86.

¹²²⁰ Telecommunications Act 2001, s 201. Geographic consistent pricing implies cross-subsidisation may already occur.

effect to the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunication services.

We will not ring fence the ex-ante allowance with a special purpose account

6.1109 Our emerging views paper also raised the option of quarantining any *ex-ante* allowance with the funds either released to regulated providers in the event of asset stranding or returned to end-users in the event the stranding risk does not eventuate.¹²²¹ The RAB would be written down when the stranding risk occurs.

6.1110 Our view is that quarantining any *ex-ante* allowance is little different to reducing asset lives. The expectation of a stranding event requires an amount to be provided akin to the probability adjusted stranding cost. As such, this amount should not be refunded if the stranding event does not happen. If it is refunded, the regulated fibre service provider has not had the risk of the asset stranding compensated. It will also require a sum in reserve equivalent to the cost of stranding if it occurs, not probability adjusted. This then stops being an *ex-ante* allowance and becomes a savings vehicle for end-users which implies they bear the risk of asset stranding.

6.1111 This also raises complexity, in comparison to shortening asset lives, for example determining when money should be returned to end-users, the rules surrounding the ring-fenced amount and who safeguards this money.

Risks compensated for through the ex-ante allowance

6.1112 The *ex-ante* allowance is meant to compensate for the risk that revenues that can be achieved, for example in deregulated areas where competition to arise, are insufficient to maintain FCM on those investments. This will be less than the total value of the effected assets as they will be partially depreciated (have already generated revenue) and competition does not imply they will generate no further revenue.

6.1113 Deregulation does not, by itself, strand assets. Competition does not necessarily preclude earning revenue and a normal return, and as Link Economics report noted; these are assets which may earn a greater than normal return when not subject to regulation.¹²²² However, competition which derives from technological change that facilitates entry of lower cost competitors, may well partially strand the assets insofar as the full investment value of the associated assets cannot be recovered.

¹²²¹ Commerce Commission “Fibre regulation emerging views: Technical Paper” (May 2019), paragraphs 635 to 644.

¹²²² Link Economics “Report on the Commerce Commission’s Emerging Views on Fibre Regulation” (July 2019), page 10.

6.1114 Chorus agrees with the inclusion of an *ex-ante* allowance. However, Chorus states:

“It’s important the Commission is transparent about the sources of asset stranding risk reflected in the *ex-ante* allowance and key assumptions (eg the Commission assumes it will be fairly neutral or passive with respect to the encouragement of competition with asymmetric risk).”¹²²³

6.1115 Chorus requests that we are transparent about the sources of stranding risk, and key assumptions. We discussed this in the draft decision.¹²²⁴ In short, the source of the risk is competition from lower cost competitors (ie new technologies) such that an efficient regulated provider is unable to recover the required revenue to achieve normal returns. This revenue shortfall can happen for the network as a whole, or in the microcosm of the deregulated market most affected by competition.

6.1116 This would happen where competition in the relevant market constrains an efficient regulated provider from setting prices of the relevant service to achieve FCM. This risk will be asymmetric – which is where we need to compensate – in cases where competitors are lower cost (ie due to technological change), regardless of their efficiency relative to the regulated provider. In other words, Chorus might be constrained because they are inefficient, and that is not a reason for compensation.

6.1117 For these investments to be economically stranded, Chorus must *also* be constrained from raising prices in *other* markets where it still enjoys sufficient market power, in order to recover the full costs of the stranded investments. For this to be the case, the relevant asset values associated with the services which face competition must have been taken out of the RAB, which is a consequence of deregulating a service (ie asset stranding). Alternatively, the competitive threat must apply more broadly than the market under consideration for potential deregulation (ie network stranding).

6.1118 The assumption is that we will deregulate Chorus’ services which face sufficient competition, which will result in reductions in the value of the RAB when the associated assets are removed from the RAB. Again, deregulation alone is not what drives the asymmetric risk we are compensating for; it is deregulation combined with competition from lower cost competitors which Chorus cannot match due to technological change. We note that any decision we take to promote competition through our regulatory tools would be for the long-term benefit of end-users.

¹²²³ Chorus “Submission on Fibre input methodologies: Draft decision – reasons paper dated 19 November 2019 and Draft fibre input methodologies determination 2020 dated 11 December 2019” (30 January 2020).

¹²²⁴ Commerce Commission “Fibre input methodologies: Draft decision - reasons paper” (19 November 2019), paragraphs 3.1363, 3.1364 and 3.1378.

6.1119 Enable and Ultrafast note that the allowance does not form part of the IMs that apply to ID regulation. Therefore, they mention they will compensate this risk bearing by targeting higher returns.

6.1120 LFC's submissions do not seem to be proposing a decision change. We note that targeting higher returns seems consistent with them bearing the risk. When assessing their targeted returns, the question will be whether the higher targeted returns are commensurate to the risk they are bearing.

6.1121 2degrees argued that the *ex-ante* allowance should be removed. However, it mentioned that it could potentially be beneficial to end-users as long as there is a mechanism to remove stranded assets from the RAB. In their view, this does not appear to be the case.¹²²⁵

6.1122 As we have discussed earlier in this section, deregulation is the main mechanism by which assets are removed from the RAB. We also note that network stranding can occur without removing assets from the RAB. We have also considered the question of whether we should retain the option to remove assets under other conditions such as unused assets. Based on our discussion on Vodafone's proposal, we have decided not to change our draft decision.

6.1123 Vodafone considered that it is rare for the Commission to compensate exposure to non-systematic risk. They quote a fragment from our draft decision which they interpret as meaning that we should not provide any compensation because a diversified investor can eliminate this risk by investing in a firm that has a competing technology such as 5G.¹²²⁶ Therefore, they submitted that our assessment should have stopped there, and that we proceeded to calculate the size of the compensation without ever justifying why it should exist in the first place.

6.1124 In addition, Vodafone submitted that our approach is in "direct conflict" with precedent set in our Part 4 IMs, quoting the following from the 2010 IM reasons paper:

Unsystematic risk is not generally rewarded in workably competitive capital markets.

...[and]

no adjustments will be made to the cost of capital for unsystematic or asymmetric risk, including real options.

¹²²⁵ 2degrees "Commerce Commission Fibre Input Methodologies Submission" (30 January 2020), page 19.

¹²²⁶ Vodafone "New regulatory framework for fibre: Submission on Fibre Regulation Draft Decision – public version" (30 January 2020), page 4.

6.1125 Vocus also agreed with Vodafone and Vector in saying that our approach is inconsistent with the one we adopted in Part 4. They argue that we should either provide an allowance both in Part 4 and Part 6 (the levels may differ due to different risks) or none at all. They asked that if we persevere with our current position, we should explain the apparent contradiction in the views we have expressed under Part 4 to those which we hold in this process.

6.1126 Vector advocated for Transpower-style settings (ie un-indexed RAB), and submitted:

The Commission’s solution for addressing demand or technology stranding risk for Chorus and LFC assets is to provide a discretionary *ex-ante* allowance on their WACC. This is the third solution provided by the Commission for managing the risk of demand or technology enabled asset stranding risk. The different methods adopted by the Commission to address stranding risk in different sectors highlights an uncoordinated and unpredictable response for managing a key concern for regulated service providers.

6.1127 We consider that our approach is consistent with past decision in Part 4. As explained in paragraphs 6.1035 to 6.1040, we consider that stranding risk is mostly—if not entirely—non-systematic. The WACC compensates for systematic risk, therefore it is unlikely to compensate providers for bearing this risk. We are clear that we make no adjustment to our WACC estimate to compensate for non-systematic risk.¹²²⁷

6.1128 We further consider that stranding risk is asymmetric for regulated providers (ie the downsides are greater than the upsides – see discussion around paragraph 6.1138). Therefore, to the extent that the regulated providers bear the risk, and since the WACC does not compensate for it, we need to compensate for this risk (if material) in order to give them an opportunity to earn a normal return on capital (ie adhere to our real FCM principle). Providers can mitigate part of this risk through retaining unused assets in the RAB and allowing for accelerated depreciation. We compensate for the remaining unmitigated risk via the stranding allowance, which we implement through cash flows. Failing to do so would undermine incentives to invest, and therefore not promote s 162(a).

6.1129 In summary, we are compensating for exposure to non-systematic risk because it is asymmetric. However, we are not doing so through the WACC, precisely because it is non-systematic.

6.1130 This approach is consistent with our Part 4 decisions. In the initial setting of the IMs we said:¹²²⁸

¹²²⁷ Stranding risk can be systematic (eg, the asset beta uplift for gas pipelines reflects greater systematic stranding risk), although we do not believe it is for fibre.

¹²²⁸ Commerce Commission “Input Methodologies (electricity distribution and gas pipeline services), reasons paper” (December 2010), paragraph H12.1.

The IMs do not make any adjustments to the cost of capital for asymmetric risk. However, the Commission does consider that it may be appropriate to deal with asymmetric risks through some other forms of adjustment or mechanisms, such as adjustments to regulatory cash flows with the use of flexible depreciation (eg a front-loaded depreciation profile in the event that asset stranding become apparent).

6.1131 We also considered this issue as part of the last IM review. Specifically, under Part 4 regulations energy networks are not exposed to asset stranding risk because they can always keep unused assets in the RAB, and therefore recover their costs. However, they are exposed to the risk of economic network stranding if the revenue they can recover is insufficient to recover their invested capital plus a return.

6.1132 In the IM review we found that the risk of network stranding for energy networks (mainly electricity lines) had become more uncertain compared to the time when we first set the IMs around 2010, mainly because of the effect of emerging technologies such as batteries, solar photovoltaics and electric vehicles. Consequently, we introduced a risk mitigation option in our Part 4 IMs whereby lines companies can request a shortening of asset lives at resets if they can substantiate that doing so better promotes the purpose of Part 4. This tool is also available (in a more generous form) under our fibre final decisions.

6.1133 This relativity of risk allocation and compensation between our Part 4 decisions and our Part 6 final decision is consistent, as the table below shows.

Table 6.18 Our Part 6 final decisions are consistent with Part 4 – more risk exposure entails more risk mitigation tools and compensation

	Fibre networks	Energy networks	Comment
Risk of economic network stranding	Higher	Lower	Independent of regulatory framework; driven by things like technological change or changing consumer preferences
Ability to remove assets in the RAB	Higher (ie consequence of deregulation)	Lower (ie we do not remove assets from the RAB)	May increase risk exposure for Chorus (requires greater compensation) but better promotes purpose of Part 6
Ability to shorten asset lives/flex depreciation	Higher	Lower	Greater ability for Chorus to mitigate risk, but is unlikely to fully mitigate, and therefore provide expectation of real FCM
Stranding allowance	Yes	No	Designed to compensate for the unmitigated risk exposure

6.1134 Vocus opposed the *ex ante* allowance submitting that in a workably competitive market there is no compensation for the possibility that competition may impact recovery of investments. They also noted that deregulation does not necessarily imply stranding, and that we intend to retain in the RAB the assets that are genuinely stranded.

6.1135 We consider that the view that competitive markets do not provide compensation for stranding is partially correct.¹²²⁹ In a workably competitive market, firms will not invest in the first place if they do not have an *ex-ante* expectation of earning normal profits. The asymmetry in the risk that Chorus faces means it may not have an *ex-ante* expectation of earning normal returns, and therefore there is a need to compensate this risk to ensure they have incentives to invest (see paragraph 6.1042).

6.1136 Vocus also noted that deregulation does not necessarily imply stranding, and that we intend to retain assets that are genuinely stranded in the RAB. We discuss the proposal to remove more unused assets from the RAB in para 6.1088-6.1099, and note that doing so would likely necessitate a higher stranding allowance, all else equal. We also agree that in general, deregulation does not imply stranding. However, we consider that in this context, there are downside asymmetric risks. There are two opposing effects which we discuss below.

6.1136.1 **Effect 1:** deregulation does not lead to stranding. This would happen where the new entrants are as or less efficient than Chorus (ie they have equal or greater costs than Chorus). The reason they can afford to enter is because Chorus' price is sufficiently above costs to make entry profitable. This can happen because Chorus is required to charge geographically consistent prices across its network. Since costs differ across the country, this necessarily implies that prices will be above cost in some markets, and below cost in others. We would expect new entry by competitors to occur in the 'low cost' markets (eg dense urban areas) where prices are high relative to costs.¹²³⁰

6.1136.2 If the above occurs and we deregulate the relevant market, Chorus should be able to *profitably* meet the competition by lowering prices, since

¹²²⁹

Profits will be competed away only to the point where they still allow the expectation of normal return (the compensation for the risk of 'losing').

¹²³⁰ Revenue in these markets is also likely higher, both in absolute terms and in terms of revenue per unit of cost. This has implications for the quantum of the risk, and therefore the size of the allowance.

its costs are equivalent or lower than the competition's.¹²³¹ Therefore, there is no stranding in that deregulated market.

6.1136.3 **Effect 2:** deregulation leads to stranding. This would happen where the new entrants are more efficient than Chorus (ie they have lower costs). This could happen due to technological change (Eg new technology such as 5G or satellite) which lowers the cost of delivering an equivalent service to Chorus'. In this case, when we deregulate, Chorus will not be able to *profitably* meet the competition since its costs are relatively higher. Although the competitor might be more efficient than Chorus, if Chorus' costs are sunk, its marginal costs may be sufficiently low that it can still compete and earn some revenue, albeit not enough to earn a full return on its assets. Therefore, there would be stranding in the relevant market.

6.1137 The source of the risk we are compensating for is competition from lower cost competitors (eg, from new technology). Where this leads to deregulation of the relevant market, we can expect lower revenues and therefore asset stranding in the deregulated market. In addition, regardless of deregulation, there is an asymmetric residual risk of network stranding.

6.1138 The existence of effect 2 means that the risk is asymmetric overall. This reflects our draft decision that deregulation would likely lead to some degree of stranding. However, we qualified this by acknowledging that while the evidence was not conclusive, it was more supportive of asset stranding being a material but modest risk for Chorus (see paragraph 6.1052).

6.1139 This discussion also addresses Vector's submission that "the different methods adopted by the Commission to address stranding risk in different sectors highlights an uncoordinated and unpredictable response for managing a key concern for regulated service providers."

6.1140 Our final decision is to provide risk compensation through a modest *ex-ante* allowance, implemented through cash flows. This allowance complements the other risk allocation and mitigation tools – retaining unused assets in the RAB and allowing for a possible shortening of asset lives (or alternative depreciation profiles).

We have addressed the asset stranding risk faced by investors prior to the IMs

6.1141 Comments on our emerging views paper, including from Chorus, specifically drew attention to the risk faced by investors over the period prior to the determination of

¹²³¹ Note that prices for the remaining end-users in other markets where Chorus operates would eventually have to rise since they are higher cost on average.

the IMs.¹²³² The rollout of regulated FFLAS networks, at the time of the investment, came with attendant deployment cost risks and demand risks that could lead to asset stranding.

6.1142 In this respect we note that the approach to financial losses effectively neutralises these risks over the pre-implementation period.¹²³³ Any losses are included within the RAB in the post-implementation period. We further note the following.

6.1142.1 To the extent it becomes clear that economic stranding is already present (at the specification of the first PQ path), ie, the required revenue cap cannot be recouped from end-users under any scenario, then the investment is stranded irrespective of regulation. We do not consider this is the case.

6.1142.2 Alternatively, it is the residual asset stranding risk (at the time we determine the IMs) that is relevant, which will be affected by the size of the RAB including financial losses, for which we are compensating.

6.1143 Consequently, we do not consider that additional compensation is required for the loss period. Our approach provides for *ex-ante* FCM as it provides investors with the opportunity (but not guarantee) to recoup their investment including accumulated past losses. This best gives effect to the outcome in s 162(a) of regulated providers having incentives to invest.

6.1144 We have also considered the issue implicit in the Oxera report, that the regulated FFLAS networks may have out or under-performed against the original expectations over the pre-implementation period. Under incentive regulation we would normally expect regulated providers to share some of this out or under performance. We note the following.

6.1144.1 We did not regulate any regulated providers over this period.

6.1144.2 Providing for under or over performance across the pre-implementation period would require an assessment of both demand and cost performance. We do not believe this would be practical. There is evidence demand targets have been outperformed. There is also some evidence cost performance has been under achieved. For example, Chorus

¹²³² For example, see Chorus “Implementation of the fibre access services regulatory framework” (September 2019), slide 2, 6 and 9. Available on Chorus website under investor news.

¹²³³ As required to be determined under Telecommunications Act 2001, s 177(2).

has publicly stated that the risks of project over-runs were realised when communal costs were revised upwards in 2013.¹²³⁴

6.1145 In considering how to best give effect to the purpose of Part 6 in s 162, incentives cannot be provided to regulated providers retrospectively. For example, to the extent any discretionary investment was inefficient, we cannot provide incentives to make this more efficient. Furthermore, any such process would be long, contentious and leave significant uncertainty until resolved contrary to the purpose of the IMs in s 174 of the Act.

6.1146 Our final decision is not to undertake any *ex-post* assessment of the efficiency of investment, control of operating expenditure or performance of demand uptake over this period. Consistent with this is that the pre-implementation period will provide for NPV=0 and no further compensation is required.

6.1147 This decision that the stranding allowance will not be retrospectively applied to the pre-implementation period remains unchanged from our draft.

6.1148 Chorus submitted that it disagreed with our draft decision not to apply the stranding allowance retrospectively. It submitted that it was exposed to asset stranding risk during the pre-implementation period, for which it should be compensated regardless of the outcome. Further, it considers that this risk is not compensated via the financial loss asset. It went on to argue that our decision “is inconsistent with the Commission’s approach for post-implementation, where it is proposing to provide an *ex-ante* allowance for asset stranding.”¹²³⁵

6.1149 Similarly, Sapere (for Chorus) submitted that “our analysis does not recognise that if Chorus has taken a risk during the pre-implementation phase it should be compensated for that risk even if it has not materialised.”¹²³⁶ Sapere also submitted the following:

¹²³⁴ Chorus “Implementation of the fibre access services regulatory framework” (September 2019), slide 9. Available on Chorus website under investor news.

¹²³⁵ Chorus “Submission on Fibre input methodologies: Draft decision – reasons paper dated 19 November 2019 and Draft fibre input methodologies determination 2020 dated 11 December 2019” (30 January 2020).

¹²³⁶ Sapere “The cost of capital input methodologies for fibre – prepared for Chorus” (27 January 2020).

The argument the Commission provides around the *ex-ante* compensation for stranding risk is not consistent with its argument that the provider is compensated for losses. If there is a risk of stranding then that is a cost, for which the provider should be compensated. The Commission recognises this in a different part of the draft decision: “The expectation of a stranding event requires an amount to be provided akin to the probability adjusted stranding cost. As such, this amount should not be refunded if the stranding event does not happen. If it is refunded, the regulated fibre service provider has not had the risk of the asset stranding compensated.

6.1150 Some investors also submitted on the issue of retrospectively applying the asset stranding allowance to the pre-implementation period, including the following from Black Crane Capital:¹²³⁷

we are surprised that this would only be the case for the post-implementation period. We outlined in our submission to the EVP that we saw the higher asset stranding risk that Chorus and the LFCs face as compared to the asset beta benchmark peer group as coming from differences in underlying business structure and also technology, and are not regulatory in nature. As such, asset stranding risk will not suddenly materialise in the post-implementation period; instead they already exist and have existed for a long time, certainly before 2011... Hence, we believe an adjustment to account for asset stranding risk should also be made in the pre-implementation period as part of the financial loss asset calculation.

6.1151 Cooper Investors also submitted that:¹²³⁸

We believe the draft decision underestimates the risk of asset stranding and the asset stranding risk uplift should also be applied from the start of the rollout given investors faced this risk at the time of the investment.

6.1152 We agree with submissions that Chorus was exposed to asset stranding risk in the pre-implementation period. We also agree that our approach for the pre and post-implementation periods differ. However, as we explain below, we consider that our approach best gives effect to Part 6 of the Act.

6.1153 The most relevant legislative provisions here are s 162(a) on providing incentives to invest and 162(d) on limiting excessive profits.

6.1154 We consider that the pre-implementation period was governed under a different legal and regulatory arrangement – contracts between LFCs and the Crown, awarded under a competitive tender. LFCs negotiated and signed those contracts, agreed to take on those risks and to go ahead with the rollout. In return, they received Crown financing. This was then overtaken by the 2018 announcement of the losses regime, which immunised fibre providers from stranding risk during the pre-implementation period.

¹²³⁷ Black Crane Capital “Submission on Fibre Input Methodologies: Draft Decision Paper” (27 January 2020).

¹²³⁸ Cooper Investors, letter (no title), (30 January 2020).

6.1155 If the prices resulting from the contracts did not compensate for those risks prior to this regime coming into force, then we consider that it is not for regulation to retrospectively change this. Retrospectively compensating these risks would effectively undermine the benefits to end-users from the competitive tender.

6.1156 Providing backward looking compensation is unlikely to promote the outcome in s 162(d). Incentives cannot be provided retrospectively. We do not compensate risk for its own sake; we do so to promote incentives to invest and efficient behaviour. Rewarding Chorus for bearing past risks does nothing to past investments, and risks failing to limit excessive profits.

6.1157 Furthermore, we consider that any retrospective risk compensation should be accompanied by an *ex-post* efficiency assessment (one key reason to allocate risk is to promote efficient behaviour). Since we are not doing such an assessment, the case for retrospective risk compensation is weakened.

6.1158 We have considered whether our decisions in relation to past investment can influence regulated providers' incentives to invest going forward. From a forward-looking perspective, Chorus should have incentives to invest consistent with our implementation of the principle of an *ex-ante* expectation of real FCM. We propose to include an allowance for asset stranding in the IMs, which provides greater certainty that we will provide an expectation of real FCM on a forward-looking basis. Therefore, we consider that applying the allowance prospectively is consistent with s 162(a).

6.1159 In summary, we consider that applying the allowance retrospectively to the pre-implementation period could undermine the benefits of the UFB competitive tenders, resulting in higher prices for end-users (and potentially result in excessive profits for Chorus), without materially improving incentives to invest going forward.

6.1160 Our final decision is that the stranding allowance will not be retrospectively applied to the pre-implementation period.

The consequences of allocating this risk to regulated providers

6.1161 Where certain regulated FFLAS are deregulated under s 226, our final decision is that our IMs will exclude the associated assets from the RAB, and cost allocation rules will apply for assets shared between regulated FFLAS and those services no longer subject to PQ regulation. There will be no *ex-post* compensation for assets that are stranded.

6.1162 We acknowledge there may be situations where effective economic stranding of the regulated fibre service provider's RAB may occur without deregulation although we believe such scenarios are less likely. We have decided not to adjust the RAB in this situation given:

6.1162.1 Reducing the RAB is unlikely to have a material impact on end-users. If the implied revenue derived from the RAB over the lifetime of the assets is not achievable, this will be the case whether the RAB is reduced or not.¹²³⁹ Consequently, we do not expect that this decision will be inconsistent with the outcome in s 162(d) of regulated providers being limited in their ability to extract excessive profits.

6.1162.2 Providing ourselves with greater discretion to adjust the RAB may potentially be inconsistent with promoting the outcome in s 162(a) by making regulated providers' returns to investment more uncertain. To the extent this may, to some extent, undermine the outcome in s 162(a), this would be expected to be to the detriment of end-users.

How we calculated the compensation which best gives effect to the purpose of Part 6 in s 162

6.1163 Where we provide for some *ex-ante* allowance, this inevitably involves some judgement. It requires a view on probabilities which are inherently difficult to estimate, most notably the risk and extent of any asset stranding.

6.1164 One of the risks of providing an *ex-ante* allowance is that regulated providers have incentives to provide evidence of its height but to remain quiet if it reduces or other evidence in their possession provides a contrary view.

6.1165 This asymmetry of information between the regulator and regulated company itself forms an asymmetric risk to end-users. Dr Lally has previously noted this risk as one of the reasons he prefers *ex-post* compensation for asset stranding risk (see Attachment F).

6.1166 When we have applied judgement to estimating the asset stranding risk, we have exercised caution and consider that the onus should be on regulated providers to demonstrate why the compensation should be higher. To date, including in submissions to the draft decision which we discuss in this section, we have received little pertinent evidence. We would expect the regulated providers to have a range of contemporaneous evidence given the importance of the issue for their businesses.

We estimated a range of between 5 to 40 basis points

6.1167 Based on the evidence before us at the draft stage, we estimated a range of *ex-ante* compensation to fall within the region of 5 to 40 basis points when applied as a discount rate to the RAB. We came to this draft decision as described below.

¹²³⁹ To the extent that the regulated providers continues to enjoy market power over certain markets, it may be able to recover some of the shortfall in those markets.

6.1167.1 Using a model developed by Dixit & Pindyck to assess the value of an annuity subject to asset stranding.¹²⁴⁰ This allows us to convert an assessment of the probability of asset stranding and the extent to which the RAB is stranded, to calculate the implied discount rate.

6.1167.2 Considering this as a cumulative probability that stranding occurs over a set period of time which strands a set proportion of the value of the RAB.

6.1167.3 Reviewing the evidence before us at the time to form a judgement given these two techniques.

6.1168 Given the uncertainty in this exercise, we considered that this is best described as a range of likely results.

Framework of analysis we use to guide judgement – Dixit and Pindyck model

6.1169 In principle, to directly estimate an appropriate *ex-ante* allowance, we need to estimate the risk of sufficient end-users leaving the network at some point in the future (or failing to join in future) such that the revenue requirements are unachievable over time (whether for a network as a whole or in microcosm for deregulated areas). The information requirements of this are high.

6.1170 We have used the insights from Dixit and Pindyck to assist consideration of these issues.¹²⁴¹ This translates a judgement of X% risk of asset stranding in T years to an increment in a discount rate.

6.1171 These insights allow us to see the potential impact of asset stranding risk as a discount rate, which is reproduced in Table 6.19 below. More detailed explanation of how we derived this table is contained in Attachment G. The table looks at the probability of stranding and the proportion of assets that would be stranded in the event stranding occurs (RAB at risk). As this is a ‘scalable’ adjustment, it is independent of the size of the RAB (although that does have a bearing on the overall cost to end-users and the likelihood of stranding).

¹²⁴⁰ Dixit and Pindyck “Investment under Uncertainty” (1994), Princeton University Press, pages 200 to 207.

¹²⁴¹ We note that these insights were used in the FPP for Chorus’ unbundled copper local loop service and unbundled bitstream access services and in the 2016 review of the IMs determined under Part 4.

Table 6.19 Potential impact of asset stranding as an annual discount rate (basis points)

	Probability of Stranding									
	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
100%	51	105	163	223	288	357	431	511	598	693
90%	46	95	146	201	259	321	388	460	538	624
80%	41	84	130	179	230	285	345	409	478	555
70%	36	74	114	156	201	250	302	358	418	485
60%	31	63	98	134	173	214	258	306	359	416
50%	26	53	81	112	144	178	215	255	299	347
40%	21	42	65	89	115	143	172	204	239	277
30%	15	32	49	67	86	107	129	153	179	208
20%	10	21	33	45	58	71	86	102	120	139
10%	5	11	16	22	29	36	43	51	60	69

6.1172 Table 6.19 is presented as the risk over a ten-year period to ease decision making.

The proportion of the RAB which may be stranded is the economic value of the entire RAB which would no longer be recoverable in the event of stranding.¹²⁴² The compensation would be over the life of the investment. The risks are related over time. For example, a 10% probability of 10% of the RAB being stranded over ten years is broadly similar to a 20% probability over 20 years.

This estimate is based on the available evidence

6.1173 Overall, we believe that the risk of economic stranding of the type we are compensating for, is at most a 10% chance of 40% of the asset value over the next ten years. It is more realistically lower. This provides a likely range of between 5 to 40 basis points.¹²⁴³

6.1174 Evidence on the probability of asset stranding is suggestive that the risk, while material, is modest. A high point would be a 10% chance of stranding in the next ten years (within an implicit associated probability over the life of the assets). The evidence before us at the draft stage from some analysts suggested the main long-

¹²⁴² This is not a one-to-one relationship with the proportion of the RAB which may be deregulated. If an area were to be de-regulated due to competition, and 20% of the RAB became excluded due to this, the proportion of the RAB which may be stranded would be less than 20% as those assets would continue to generate revenue.

¹²⁴³ The nature of this exercise is such that we consider we should aim to be broadly right rather than precisely wrong. Therefore, we have rounded the lower and upper bounds of the range to the nearest 5 basis points. The lower bound of the range is likely above 0. We have set it at 5 basis points rather than 0 for materiality reasons – a stranding allowance of 0 would be unlikely to make a material difference on Chorus' incentives to invest (for reference, a 5 basis points allowance on an assumed RAB of \$5 billion would be \$2.5m, or about 0.25% of annual revenues (assuming \$1bn annual revenues).

term risk is of line loss from fixed mobile substitution particularly 5G. This is generally assessed as low given:¹²⁴⁴

- 6.1174.1 capacity constraints on mobile networks and the high cost of deployment for a higher quality broadband service;¹²⁴⁵
- 6.1174.2 the incumbency advantage of the LFCs in New Zealand who have achieved a high uptake;
- 6.1174.3 the delay in delivering spectrum that facilitates 5G roll out;
- 6.1174.4 S&P Global noted “We view the risk of technological substitution for fibre networks as relatively low given their high capacity and low operating and maintenance expenses”;¹²⁴⁶
- 6.1174.5 other analysts place their advice more in terms of the investor appetite for risk and long-term view of the potential for network competition, without trying to analyse the extent of risk;¹²⁴⁷ and
- 6.1174.6 the Grant Samuel advice, as part of the de-merger prospectus for Telecom, noted fixed mobile substitution was likely to be low.¹²⁴⁸

6.1175 Investors Mutual Limited’s (Investors Mutual) submission on the emerging views paper stated that they view the risk of Chorus failing to earn its full revenue cap over the life of the assets at 30% which provides another gauge, although over a longer time frame.¹²⁴⁹ If they view the life of assets as 30 years – this is an approximate 10% risk in our Table 6.19 which is based on ten years.

¹²⁴⁴ For example, see Forsyth Barr 12 March 2019 and UBS 6 February 2019.

¹²⁴⁵ For example, “Although 5G is expected to provide comparable speeds to mid-tier fibre connections, data caps are likely to limit consumers substituting fixed line Internet services with mobile Internet services. - <https://www.cio.co.nz/article/665606/jason-paris-vodafone-nz-big-bet-5g-we-call-it-project-jackson/> [Accessed 17th October 2019].

¹²⁴⁶ S&P Global Ratings, Chorus, 31 May 2018, Page 5.

¹²⁴⁷ For examples see, Credit Suisse, Chorus: Line loss continues but fibre uptake positive, February 2019

¹²⁴⁸ See Telecom, demerger prospectus, page 73, September 2011, “given the capacity, speed and quality of service advantages of high quality fixed line connection relative to wireless connection, Grant Samuel considers that the impact of FMS will not be substantial. Grant Samuel holds the view that wireless networks have inherent physical limitations (which will be exacerbated by the anticipated rapid growth in demand) and that FMS will be more constrained. It is more likely to appeal to low end-users and other niche situations such as highly mobile single person households. Grant Samuel believes that most users, particularly heavy users, will use both fixed line services (for intensive applications) and wireless as a complement (for mobility). As the market evolves over the next 20 years, it is expected that new applications will be data intensive.”.

¹²⁴⁹ Investors Mutual Ltd, (no title), Letter of July 2019, page 2

6.1176 Evidence on the proportion of the RAB that is subject to stranding risk again suggests it is modest, and below 40% of the asset base. It will be less than a one-to-one loss of end-users (or reduced end-user uptake).

6.1176.1 Even if a substantial area such as Auckland were to become deregulated due to competition from a lower cost rival(s), this does not imply all the associated assets are fully stranded, Chorus can still compete and earn revenue. Rather the ability to fully recoup the investment may be impaired.

6.1176.2 There are likely to be some other mitigations. Where the rival technology itself uses regulated FFLAS, as has been suggested for 5G,¹²⁵⁰ revenue may be reduced but not totally lost, even where end-users switch to that rival technology. Vodafone and some analysts have also noted that substitution to fixed wireless will see some demand recaptured to provide fibre to cellsites.¹²⁵¹

6.1176.3 We can also expect an ability, albeit limited, to extract further value from remaining end-users under PQ regulation to compensate for lost end-user revenues. It is also likely to be the case that the highest value end-users are those that value the superior speeds and capabilities of a regulated FFLAS network and are least likely to switch.

6.1176.4 Vodafone has noted that layer 2 assets are not irreversible investments, since they can be redeployed or sold and should be excluded.¹²⁵² They consider that the only assets at risk are the physical infrastructure and dark fibres on the GPON network. In our assessment layer 1 infrastructure is likely to form the bulk of the RAB. It represented []
[COI].

6.1176.5 We also note that while asset stranding is a material risk, there is some possibility of upside. For example, the economic lifetime of copper assets extended beyond its original expectation due to the arrival of broadband technology. Likewise, we agree with the submission from Trustpower that apparently stranded fibre assets may become

¹²⁵⁰ For example, see Chorus “Submission in response to the Commerce Commission’s fibre regulation emerging views dated 21 May 2019” (July 2019), paragraph 181.2.

¹²⁵¹ Vodafone New regulatory framework for fibre: Submission on Fibre Regulation Emerging Views, July 2019 page 10.

¹²⁵² Ibid, pages 8 and 9.

'unstranded' over time.¹²⁵³ However, we believe this is, on balance, less likely to resolve the issue of expectations of earning a normal return associated with asset stranding. Again, it is factor which draws us to providing a modest allowance.

6.1177 Consequently, we consider that if stranding occurred, a range of between 10% and 40% of the RAB being potentially stranded is an appropriate range estimate, although it is likely to be more modest.¹²⁵⁴

6.1178 The size of the stranding allowance attracted a number of submissions on our draft decision. Below we include some extracts on what we see as the main points.

6.1179 L1 Capital makes the point that 80% of regulated revenues – rather than RAB – are at risk of being stranded. It considers that:¹²⁵⁵

Using a % of RAB measure for stranding risk does not capture the fact that it is dense urban areas that are likely to be stranded and these represent a much larger contribution to returns for Chorus than implied by the RAB. It is % of regulated revenues that the Commerce Commission should focus on in its assessment. Therefore, RAB is the incorrect methodology for calculating stranding risk for a regulated fibre provider. It understates the risks to regulated revenues that result from stranded investments in dense urban areas, which are the areas most challenged by competition.

6.1180 L1 Capital estimates this corresponds to revenues generated from the 1.1m end-users in the denser UFB1 areas, which, in their calculations, are 80% of Chorus' total. Revenue from these end-users would, in its view, be more at risk because of the combined effect of higher density, which means that mobile competition is more economic, and geographically consistent prices, which means higher price-cost margins in these relatively low-cost areas.

6.1181 We agree with L1 Capital that stranding in a dense urban area will likely result in larger revenue loss compared to the value of the assets that are stranded there.

6.1182 However, what matters for Chorus' cost recovery is the value of the relevant assets. This is because the value in the RAB is what drives aggregate revenue recovery in regulated markets. The revenue loss in the now competitive dense urban area will be driven by the intensity of competition and Chorus' ability to price flexibly, which in turn depends on whether we deregulate it or not. However, the extent to which

¹²⁵³ Trustpower Submission: Fibre Regulation Emerging Views, July 2019 paragraph 3.7.5 and Vodafone New regulatory framework for fibre: cross-submission on Fibre Regulation Emerging Views – Cost of Capital August 2019 pages 5 to 9.

¹²⁵⁴ The lower bound of 10% of the RAB being potentially stranded reflects the fact that a lower number would result in a stranding allowance smaller than 5 basis points. As mentioned above in the footnote to paragraph 6.1173, we consider that such a small allowance would be unlikely to make a material difference on Chorus' incentives to invest.

¹²⁵⁵ L1 Capital, submission, 30 January 2020.

Chorus can recover this revenue loss in other regulated markets will be partly driven by whether the relevant asset values are removed from the RAB. Consider the two scenarios:

6.1182.1 We do not deregulate - revenue drops in dense urban area and we retain relevant assets in the RAB. The revenue that Chorus is allowed to recover in aggregate in regulated markets is unchanged, what changes is that it now has to try to recover the revenue from the remaining regulated markets.

6.1182.2 We deregulate - revenue drops in dense urban area but we remove assets from the RAB. The revenue that Chorus is allowed to recover in aggregate in regulated markets drops by the value of the assets removed. It now has to try to recover the adjusted revenue from the remaining regulated markets. In deregulated markets, Chorus has the opportunity to win back the business that is lost as a result of competition induced by geographic averaging. They may still be able to earn a normal return on the assets in the now deregulated market.

6.1183 Therefore, we consider that focusing on the proportion of the RAB at risk of stranding is the correct approach.

6.1184 Unison submitted on the interaction between the two types of asymmetric risks:¹²⁵⁶

The Commission's assessment of adequate compensation for Type II events considers the interaction with the likelihood of Type I events and the challenges of recovering the costs of a Type I event in the long-term presence of the potential for asset stranding.

6.1185 We consider that this interaction is one of the many factors supporting a stranding allowance above zero, as discussed in paragraph 6.1207.4.

6.1186 We also received several submissions which provided alternative estimates of the extent and probability of asset stranding, both higher and lower than our draft decision or that we defer deciding on this matter.

6.1187 L1 Capital submitted that they estimate that "80% of the RAB revenues are at risk with a 15% to 23% chance of stranding occurring. Based on the Commerce Commission's analysis this equates to a 140bps to 210bps increase in the discount rate."¹²⁵⁷

¹²⁵⁶ Unison "UNISON SUBMISSION ON DRAFT FIBRE IMs" (30 January 2020).

¹²⁵⁷ Ibid

6.1188 Chorus referred to NERA's "more accurate approach", which uses the same model in a different way. Nera (for Chorus) considered:¹²⁵⁸

It is important to jointly consider the categories of assets within the RAB that might be stranded, and their probability of stranding. The NZCC does not take this approach, and its application of the exponential decay model implies that 60% of the RAB is attributed a zero probability of stranding. However, there are likely to be different parts of the network which are subject to differing (and non-zero) stranding risks and therefore probabilities;

In particular, the risk of stranding arising from fixed-mobile substitution is concentrated at the very edge of Chorus' network *ie*, the "fibre lead-in". If these assets are stranded by mobile substitution, they will no longer be used, and therefore no revenue will be earned by these assets except in the circumstances where that premise returns to a fibre connection in the future;

A more plausible estimate is therefore likely to be in the range of 10-20% with this risk being concentrated at the edge of Chorus' network (the fibre lead-ins);

However, this does not imply that the other assets in the RAB have a zero probability of stranding. Importantly, parts of the RAB may be at risk due to unbundling or fixed network bypass. While these risks are likely to be much smaller (in a probability sense) than fixed mobile substitution, they are unlikely to be zero. Based on an assessment of probabilities of stranding for the remaining asset categories that make up the RAB (set out in more detail later in our report), we have performed an illustrative/ "back of the envelope" calculation of the overall stranding allowance which gives a range of approximately 31 to 87 basis points (compared to the NZCC's range of 5 to 40 basis points).

6.1189 RSPs submitted the following key points:

6.1189.1 Spark recommended that we defer quantifying the stranding risk until after the first regulatory period, given the complexity and lack of information currently available;¹²⁵⁹

6.1189.2 Vodafone submitted that we have made no attempt to quantify the extent to which stranding risk is asymmetric, adding that there is too much uncertainty to produce a reasonable number. It therefore recommends zero as the best estimate for the stranding allowance;¹²⁶⁰

6.1189.3 Vocus, referring to L1 Capital's submission, noted the following:¹²⁶¹

¹²⁵⁸ NERA "Assessment of Type II asymmetric risk for Chorus' fibre network" (22 January 2020).

¹²⁵⁹ Spark "Fibre Input Methodologies: draft determination: Submission" (30 January 2020).

¹²⁶⁰ Vodafone "New regulatory framework for fibre: Submission on Fibre Regulation Draft Decision – public version" (30 January 2020).

¹²⁶¹ Vocus Group "Draft Fibre Input Methodologies Determination: Submission to Commerce Commission – public version" (28 February 2020).

Given the comments L1 Capital has made we would expect to see substantial ‘asset flight’ with L1 Capital exiting or downscaling its investment in Chorus. Instead L1 Capital has expressed bullish views about its investment in Chorus including that Chorus has been “extremely undervalued” and it “expect[s] dividends to accelerate over the next five years”. Chorus has been one fund’s largest investments, and L1 Capital has sought and gained clearance from the Crown to boost its stake in Chorus.

6.1190 We have considered these submissions and note that the stranding allowance inevitably involves judgement in the face of uncertainty to reach a view on the potential extent (ie, proportion of the RAB) of stranding and the *probabilities* involved.

6.1191 In the context of estimating the allowance, regulated providers have an incentive to submit evidence on the severity of stranding risk, but to remain quiet otherwise.¹²⁶² Failing to see concrete evidence from regulated providers could be because they either do not have it, or it does not support their case for a higher allowance.

6.1192 In this regard, we note that Chorus did not provide evidence on the risk of stranding. Instead, they relied on NERA, whose analysis is mainly based on publicly available third-party information. Conversely, [

[COI]

6.1193 Moreover, in addition to the substance of a submission, we consider that observed behaviour in terms of investments or operations can also provide valuable information on the true beliefs of parties about stranding risk.

6.1194 On this point, we consider that Vocus’ submission above carries some weight. L1 Capital doubled their shareholding in Chorus from 7.3% of shares on issue in 2017 to 14.8% in 2018.^{1263,1264} It then was the largest shareholder in Chorus until last financial year.¹²⁶⁵ They have subsequently reduced their stake down to 9.8%, with the last transaction notified in late September 2020, when the Chorus share price (and the New Zealand share market) was at unprecedented highs.¹²⁶⁶ This level of shareholding still puts L1 Capital as one of the top 3 shareholders in Chorus.

¹²⁶² This is an important reason to set the allowance in the IMs, rather than updating it at every PQ reset, which would allow for more windows to opportunistically influence the size of the allowance.

¹²⁶³ Chorus “Annual Report” (2017), Page 73

¹²⁶⁴ Chorus “Annual Report” (2018), page 89.

¹²⁶⁵ Chorus “Annual Report” (2020), page 99. These figures relate to the table titled “Substantial holders”. We note that L1’s ranking differs when compared to the table titled “Twenty largest shareholders...”. However, looking at the number of shares held, L1 is the second largest shareholder. These differences do not change the validity of our point, which is that L1 is one of the largest shareholders in Chorus and has increased its shareholdings since 2017.

¹²⁶⁶ See September NZX notice of change of interest of substantial holder: <http://nxz-prod-s7fsd7f98s.s3-website-ap-southeast-2.amazonaws.com/attachments/CNU/360134/331192.pdf>

6.1195 If they believed that there was a 15-23% chance that 80% of Chorus' regulated revenues could be lost to competition, we would expect to see documentation in submissions to that effect. For reference, assuming revenues of \$1bn (they were \$959m last year), those numbers roughly imply an expected drop in revenues of \$120-184m.¹²⁶⁷

6.1196 It is also possible that they believe there is material stranding risk of this extent and are engaging in this process in good faith to seek to receive adequate compensation for bearing the risk. The stranding allowance they argue for (140-210 basis points) would equate to about \$70-105m per annum on an illustrative \$5bn RAB.

6.1197 In terms of the potential *extent* of stranding, our draft decision was that at most 40% of the value of the RAB could be subject to stranding.

6.1198 NERA arrived at an estimate of about 72% of the RAB having at least some probability of stranding.¹²⁶⁸ This is largely driven by their attribution of 0-5% stranding probability to the UFB Communal asset category.

6.1199 We consider that NERA are correct to say that most assets have a non-zero probability of stranding. However, we have made the point in our risk allocation economic principle that we only compensate material risk bearing. NERA's inclusion of this very large proportion of the RAB which has a very low (0-5%) probability of stranding has the effect of significantly increasing the extent of assets under consideration for a stranding allowance under the Dixit and Pindyck model.

6.1200 Chorus submitted that the communal network faces a lower risk as those assets may be able to still be used in the event mobile displaces fibre in a material way.

6.1201 Our judgement is that this very low stranding probability for this very large extent of assets is not unique to the fibre network (ie arguably this is an attribute for electricity networks too) and is best mitigated through the other tools – potentially exercising the flexibility on the depreciation method to adopt, including shortening asset lives in excess of GAAP rules, and/or keeping unused assets in the RAB. That is how our Part 4 regimes deal with stranding risks of this magnitude (except with less flexibility allowed than here over depreciation).

6.1202 These reasons suggest that our estimate of 40% of regulated assets at risk is unlikely to be materially wrong. In fact, the best estimate is likely to be below that, which corresponds to the connection assets at the edge of the network. NERA estimates them at 29% of the RAB. Further, we note that any unused assets will likely have depreciated by the time they become inactive. Since some of the assets at the edge,

¹²⁶⁷ Chorus "Annual Report" (2020), page 23. Note this also includes copper revenues.

¹²⁶⁸ NERA "Assessment of Type II asymmetric risk for Chorus' fibre network" (22 January 2020), Table 5.2.

such as ONTs, have a shorter asset life, this suggests the 29% could be seen as an upper bound (because at any point in time they are more likely to have depreciated a relatively larger proportion of their value).

6.1203 In terms of the potential *probabilities* of stranding, our draft decision was that there was at most a 10% chance of stranding.

6.1204 To bound this discussion, NERA and L1 Capital suggested a probability range of 10-20% and 15-23% respectively. Vodafone submitted it is zero.

6.1205 Chorus' reliance on NERA for theoretical arguments is in itself suggestive that Chorus does not have sound evidence of stranding risk. If there was a 20% chance a major part of their rollout is stranded, we would expect internal reports on this and careful monitoring. This observation suggests we err on the side of caution in terms of applying judgement to the probability of stranding – it is an appropriate regulatory response to asymmetric information.

6.1206 The following reasons suggest that maintaining our 10% upper bound is reasonable.

6.1206.1 We do not propose to remove unused connection assets from the RAB, unless the relevant market is deregulated. This pushes down the probability of asset stranding.

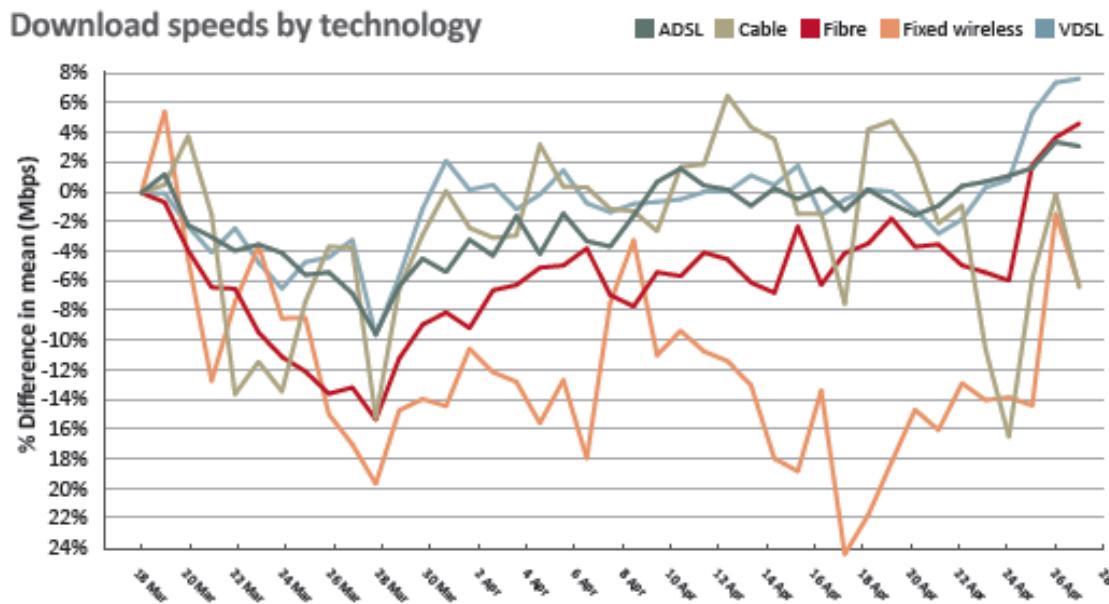
6.1206.2 Where we deregulate a relevant market because competition has developed to such an extent, Chorus could be in a scenario where it has a good chance of profitably meeting the competition (and hence potentially winning back some customers lost to fixed wireless), because new entry is most likely in the low-cost areas, as discussed under 'Effect 1' above. This pushes down the probability of stranding. Also, since assets are sunk and marginal costs are likely low, Chorus may be able to reduce prices and still earn some return, even if not a normal one.

6.1206.3 Some of the assets at risk are not sunk and can be sold (ie, ONTs), or can have an alternative use, even if less profitable (Vodafone submitted that some GPON fibres could be re-sold as small cell backhaul). This pushes down the probability of stranding.

6.1206.4 Connections requiring better performance (eg, higher speeds) are less likely to switch to FWA. The recent lockdown can be seen as a natural experiment in the sense that it resulted in significantly higher and unprecedented levels of broadband demand. If anything, it highlighted the superiority of fibre over currently available FWA when broadband demand increases (as is expected in future), as the figure below shows. 5G will improve FWA's performance.

[

"¹²⁶⁹] [COI]



Source: Commerce Commission.

6.1206.5 The competitive constraint imposed by alternative fixed line access technologies such as cable has not increased, as the figure below shows.

6.1207 However, there is evidence to suggest that the probability of stranding is non-zero. Some of the main reasons include:

6.1207.1 [

.] [COI] However, as there are other commercial drivers for network densification, it is likely that we will see more densification which will allow for more FWA over time. FWA revenue will be considered in these business cases.¹²⁷⁰

6.1207.2 Connections requiring lower performance (eg lower speeds) are those for which FWA can be an alternative to fibre. The evidence here on the likelihood that we will see much switching from fibre to FWA is mixed. On

¹²⁶⁹ [

.] [COI]

¹²⁷⁰ We note recent calls for government to back 5G deployment as part of economic recovery efforts. The outcome of this might change the business case for 5G.

the one hand, L1 Capital believes a significant proportion of these users will be attracted to new mobile services in dense urban areas through new mobile FWA services that can offer even small (\$5-\$10 per month) price discounts.

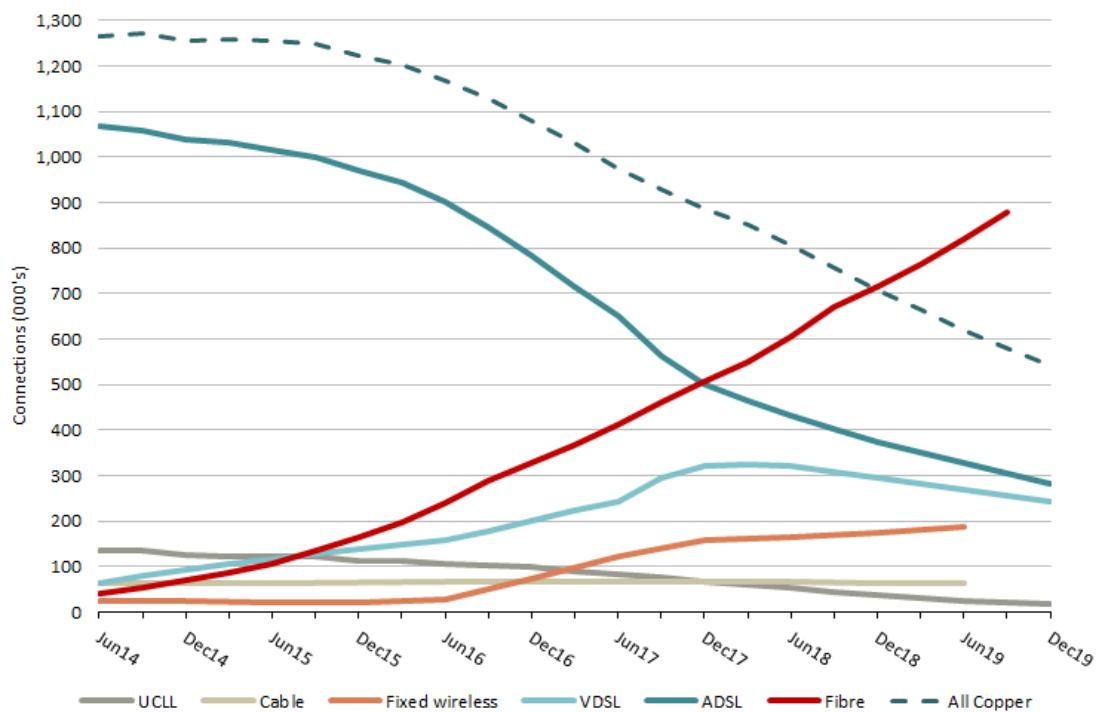
[

]

[COI]

6.1207.3 The share of FWA has been growing since 2016 and continues on an upward trend, although uptake appears to have slowed, as Figure 6.11 shows.

Figure 6.11 Broadband connections by technology



Source: Commerce Commission.

6.1207.4 In terms of the interaction with the likelihood of Type I asymmetric events, we agree with Unison that our decision to compensate for the costs of these events *ex-post*, once they occur, will tend to increase the probability of Type II stranding. If we need to allow Chorus significant increases in allowed revenue *ex-post* to compensate for a Type I event, then this will increase prices, and with it the likelihood that end-users switch to competitors, at the margin. Therefore, the resulting higher Type II risk is consistent with a non-zero stranding allowance.

6.1208 On balance we consider that there is enough evidence to suggest that the probability of stranding is above 0% but below 10%. There is no convincing evidence that the probability is clearly above 10%. Since it is not clear that using a different probability value better meets the purpose of Part 6, we have decided to maintain the position in the draft decision.

6.1209 NERA also submitted that we may not be appropriately applying the Dixit and Pindyck model. They argue that the natural interpretation of this model is to assume that the assets under consideration are fully stranded with a certain probability. This does not lead us to change our decision.

6.1209.1 The Dixit and Pindyck model is stylised and does assume if stranding occurs then it is total – but that is not realistic in our situation where it is more likely the ability to recoup costs is impaired, not destroyed.

6.1209.2 Our use of the Dixit and Pindyck model is for a (partial) ‘sudden death’ loss of value. The attractive feature is that with a certain probability of it happening per year at any time, adding the corresponding basis points to the discount rate is the exact way of finding the expected value of the loss over all possible realisations of the process. Our 10-year horizon is just a good way of forming a view about plausible rates.

6.1209.3 We could take their approach – but that would change the probability. For example, what is the probability that 5G leads to all lead-ins being stranded in an area? That seems like a very remote possibility.

6.1209.4 In particular, if we took their logical argument, NERA is saying that there is a 10%-20% chance that 5G completely replaces lead-ins across the Chorus network – this is inherently implausible.

6.1210 Overall, the considerations on the extent and probability of stranding suggests that we could update our parameters to up to 30% of the RAB and maintain the 10% probability upper bound. This would result in an updated range of about 5-30 basis points.

6.1211 On the basis of the above reasons, we confirm our final decision to set the size of the allowance at 10 basis points.

Estimating a point low in the range best gives effect to s 162

6.1212 We consider that a lower point in this range (5-30 basis points) is likely to best give effect to the purpose in s 162 and have reached the final decision of providing a 10 basis point allowance for asset stranding risk.

6.1213 When deciding how to best give effect to the outcomes in s 162(a) and (d) in determining the amount of *ex-ante* compensation we are conscious of the following.

6.1213.1 Setting the amount to zero risks failing to provide incentives for regulated providers to invest contrary to s 162(a).¹²⁷¹

6.1213.2 The asset stranded risk left over after our *ex-post* mechanisms represents the potential shortfall in revenue that would allow a normal profit on the associated investments that Chorus can earn once exposed to competition from new technology. This is likely far less than the total revenue required for a normal return given that the associated assets will still likely be used and will continue to generate revenue.

6.1213.3 Consequently, we consider that the higher points in the range would likely over-compensate Chorus to the detriment of the outcome in s 162(d) of regulated providers being limited in their ability to extract excessive profits.

6.1213.4 There are mitigations to this risk as discussed in paragraphs 6.1174-6.1176 which points to a lower point in the range.

6.1214 In its submission to the draft decision, NERA considered that:¹²⁷²

The NZCC has in other contexts (*ie* when estimating the cost of capital and conducting international benchmarking) considered that an appropriate starting point is the mid-point of a range, and then considers whether there are any reasons to deviate from this mid-point. In the present circumstances we do not consider there are any valid reasons for deviation from the midpoint, particularly when considering risk related to the fibre lead-in;

Taking the mid-point of our illustrative calculation gives an *ex ante* allowance to account for Type II asymmetric risk of 59 basis points. As already noted, the NZCC will be able to perform this calculation with more precision once the RAB has been determined.

6.1215 Our reason to choose a basis point below the mid-point is that we do not consider the mid-point to be a materially better estimate in terms of promoting the purpose of Part 6. The mid-point of the revised range of 5-30 basis points is 17.5 basis points, which would correspond to either (refer to the table above):

6.1215.1 A 30-40% of the asset base being stranded with 5% probability, or

6.1215.2 A 10-20% of the asset base being stranded with 10% probability.

6.1216 We consider that the most likely point estimate is below the mid-point. Regardless, as noted above, the stranding allowance is not intended to provide full compensation for stranding risk. Rather, it is designed to compensate for the expected shortfall in revenue that results from the quantum of risk that remains

¹²⁷¹ Note that the allowance does not compensate for all possible stranding risk.

¹²⁷² NERA “Assessment of Type II asymmetric risk for Chorus’ fibre network” (22 January 2020), page 2.

unmitigated after the other two tools have been employed – retaining assets in the RAB and adjusting depreciation (or asset lives).

6.1217 Therefore, we confirm our final decision to set the size of the stranding allowance at 10 basis points, which is below the mid-point of the range.

Other gauges are not as relevant

6.1218 In response to our emerging views paper Chorus provided a report from Oxera which included an estimate it views as an appropriate assessment of the *ex-ante* compensation for asset stranding.¹²⁷³

6.1219 Oxera estimates an uplift to the cost of capital of between [] [COI] basis points is needed. The range provided by Oxera implies on a ten-year time horizon a greater than [] [COI] of assets are stranded up to a greater than [] [COI] of assets are stranded. Technically its estimate dates back to 2011.

6.1220 For the reasons noted in paragraphs 6.1056 to 6.1062, we do not consider that this approach is relevant for our decision.

6.1221 For suppliers of gas pipeline services, as a result of the 2016 review of the IMs determined under Part 4,¹²⁷⁴ we provided for an asset beta increase of 0.05 (a roughly 40 bps adjustment) partly based on systematic asset stranding risk implying that there was a 9% chance the entire network would be stranded in 25 years.¹²⁷⁵ Enable and Ultrafast submitted a report from WIK which has drawn attention to this previous uplift and the asset beta adjustment of 0.1 (roughly a 80bps adjustment) which applied to suppliers of gas pipeline services before we reduced it as a result of the 2016 review of the IMs determined under Part 4.¹²⁷⁶ No reasons were given as to why systematic asset stranding risk for gas networks in comparison to electricity networks would be an appropriate comparator for their view on the difference with stranding risks between Chorus and the other LFCs.

6.1222 Our decision undertaken for the regulation of gas pipeline services was in response to the evidence and factual context of that decision. We now take a different decision with respect to regulated FFLAS in respect of the evidence and factual context before us now. We do not consider that the evidence concerning the

¹²⁷³ Oxera “Compensation for asymmetric Type 2 risks”, (July 2019), paragraph 5.6.

¹²⁷⁴ Under s 52Y of the Commerce Act 1986 we must review each IM no later than seven years after its date of publication.

¹²⁷⁵ Commerce Commission “Input methodology review decisions: Topic paper 4: Cost of capital issues” (20 December 2020), paragraphs 339 to 345.

¹²⁷⁶ WIK-Consult “Report for Enable Networks and Ultrafast Fibre in response to the Commerce Commission’s “Fibre regulation emerging views: Technical Paper” of 21 May 2019”, (July 2019), paragraph 50.

systematic risk facing suppliers of gas pipelines services is relevant to regulated FFLAS networks. At that time, we were concerned with systematic risk, substantial evidence had been offered directly relevant to this and we had substantive reasons to consider that the firms in the comparator set used for estimating the asset beta in the gas sector did not reflect all of the systematic risk facing New Zealand suppliers of gas pipeline services.

This allowance applies to the entire RAB including the loss asset

6.1223 Our final decision is that the allowance will be set within the IMs relating to the supply of regulated FFLAS and the method of calculation will be a fixed allowance within the cash flows of the PQ path. The method of calculation will be the same as for the regulated allowance for the cost of capital, ie, the RAB x discount rate.

This will not be retrospectively applied to the pre-implementation period

6.1224 The allowance has been decided upon the forward-looking risks at this time. For the reasons provided in paragraphs 6.1141 to 6.1145, we do not consider that compensation over the pre-implementation period is required.

6.1225 This decision remains unchanged from the draft decision. We have provided additional reasoning in paragraphs 6.1152 to 6.1168 in response to submissions to our draft decision.

Updating the ex-ante allowance over time

6.1226 As the allowance is to be provided within the IMs, it would be reviewed at least every seven years.¹²⁷⁷

6.1226.1 The *ex-ante* allowance represents our best view of the risk of asset stranding over the next ten years, based on the evidence before us. It implies a level of compensation over the life of the assets. As such it should only be updated, for the existing assets, if new evidence shows that the risk, at the time we set the allowance, was mis-estimated. This is inherent in allocating the risk to the regulated fibre service provider. This does imply, at any particular time, *ex-post*, FCM may not be achievable.

6.1226.2 Equally it may be the case that at some point in the future asset stranding risk has receded, perhaps to the point it is no longer material. This need not imply that the *ex-ante* allowance should be stopped for pre-existing investment. Rather, the allowance would decline as those assets are depreciated and replaced with new assets.

¹²⁷⁷ Telecommunications Act 2001, s 182(1).

6.1226.3 This is an important element of an *ex-ante* allowance. The regulated fibre service provider should *ex-ante* expect to earn a normal return, but all other things being equal, *ex-post* will not earn a normal return if asset stranding occurs and will earn a greater than a normal return if asset stranding does not occur. It is the probability weighted average of these two possible events which provides the *ex-ante* expectation of a normal return.

6.1227 For forward-looking investment, any updated assessment of risk, *at the time of the re-examination*, should apply on a forward-looking basis. In practice this could be incorporated as an expected weighted average *ex-ante* allowance across forward-looking and pre-existing investments.

6.1228 This is important as one of the justifications for allowing an *ex-ante* allowance for asset stranding is it protects end-users from price shocks. Allowing the *ex-ante* allowance to increase with actual risk at the time of our first review of the IMs relating to the supply of regulated FFLAS across the entire asset base would dilute this, risk over-compensation and essentially pass some of the risk back to end-users.

6.1229 Chorus submitted the following in response to our draft decision:¹²⁷⁸

Ex-ante allowance shouldn't be fixed – As the telecommunications market is dynamic, there is a risk of locking in an error if the Commission includes the *ex-ante* allowance as a fixed parameter in the IMs. It would be more appropriate to reassess the *ex-ante* allowance as part of the price-quality determination (PQD) for each regulatory period.

The Commission is proposing that an *ex-ante* allowance of 10bps is incorporated into the asset valuation IM and effectively locked in for the life of the existing assets.

It would be more appropriate for the Commission to calculate the *ex-ante* allowance for each PQD, when the detailed information of asset categories in the RAB is available.

6.1230 We considered the alternative of setting this allowance as part of the process of specifying PQ paths and considered that this was less likely to best give effect to the purpose of Part 6. We remain of this view for the below reasons:

6.1230.1 Setting of the PQ path is a time-constrained process, while this allowance is likely to be a very contentious matter. The risk is that PQ resets will be more contentious, take longer to be determined, be more costly for all parties involved, and potentially not allow parties to fully consider this matter. End-users eventually end up paying for the costs. In

¹²⁷⁸ Chorus "Submission on Fibre input methodologies: Draft decision – reasons paper dated 19 November 2019 and Draft fibre input methodologies determination 2020 dated 11 December 2019" (29 January 2020), paragraphs 255.4, 268 and 269.

addition, the materiality of the stranding allowance on allowed revenues means that providing certainty as to its level is desirable. Setting it in the IMs achieves this.¹²⁷⁹ A similar issue arises with the cost of capital, which has benefited from the more considered review allowed under the IM process. Parties also benefit from the greater certainty that setting some WACC parameters in IMs provides.

6.1230.2 Asymmetry of information between the regulator and regulated party is more likely to bite in these circumstances, so we consider this may be important in this matter.

6.1230.3 This is an important consideration for *ex-ante* real FCM and is relevant across multiple price controls and consequently is a matter for which predictability under s 174 seems more relevant.

6.1230.4 We recognise that there are considerations both ways here. Consideration at the time of a PQ path reset will allow for more frequent reconsideration and this may provide greater and more up to date information. This may be most important for when we first set the allowance given we are likely to have substantively more information at the end of the first regulatory period.

6.1230.5 We also considered delaying this decision to a later date, effectively allowing for an allowance but setting an initial value of zero. Spark proposed delaying this decision, noting the uncertainty of any such estimate and questioning whether there is any substantive stranding risk. Spark also noted the tight timelines for setting the IMs and the potential impact to end-users from increasing prices.

6.1230.6 However, this is a core decision in the regulatory package, goes directly to one of our core economic principles and our consideration of the outcome in s 162(a) of regulated providers having incentives to invest. Delay would result in greater uncertainty. We consider that we are likely to best give effect to the purpose of the IMs in s 174 and the purpose of Part 6 in s 162 by reaching our best view of the appropriate allowance now.

6.1230.7 We also took into consideration that the nature of asset stranding means that one can never have a precise estimate of its likelihood until the stranding is about to occur.

¹²⁷⁹ We note Chorus recommended that we calculate the allowance once the initial RAB has been determined. Doing so would delay the setting of the asset valuation IM. Since this IM is fundamental to providing certainty to all stakeholders, we consider that the cost of delays in terms of reduced certainty outweighs the benefit of a more accurate estimation of the stranding allowance.

6.1230.8 Put simply, we have decided to allocate stranding risk to Chorus, and partly compensate for it through the stranding allowance. Allocating the risk to Chorus implies that the allowance needs to be fixed, at least for existing assets. An update could be applied to subsequent investment.

6.1230.9 To illustrate, suppose that stranding became certain at a future point in time. Increasing the allowance up to 100% in light of the new information (assuming that was possible) would transfer all of the stranding risk back to end-users (ie, go against our intent of allocating the stranding risk to Chorus). Similarly, if it became clear that stranding had a very small chance of occurring, lowering the allowance down to just above zero would similarly transfer the risk to end-users.

6.1231 On the basis of these reasons, we confirm our draft decision—now final—to specify the stranding allowance in the IMs.

Interrelationship with consideration of asset life shortening at specification of PQ paths

6.1232 In effect the compensation to regulated providers subject to PQ regulation is a combination of different *ex-ante* and *ex-post* mechanisms. This includes retaining stranded assets in the RAB (we have no *ex-post* efficiency optimisation of the RAB).

6.1233 When we consider the shortening of asset lives (or alternative depreciation profiles) as part of specifying PQ paths, its consistency with the *ex-ante* allowance is also relevant. This places a greater burden on the regulated fibre service provider to demonstrate how its proposal is consistent with receipt of an *ex-ante* allowance.

6.1234 For example we would want to avoid the situation ten years hence where it becomes apparent an area or service is almost certain to be deregulated in a few years' time – asset stranding has effectively occurred - and then asset lives are significantly shortened to place the burden on end-users to compensate for this. This may trigger the price shocks to end-users the *ex-ante* compensation is meant to mitigate.

The asset valuation IM contains our decisions

6.1235 Within the asset valuation IM, we have decided to:

6.1235.1 allow for the reduction of the RAB with respect to assets associated with deregulated areas, end-users or services;

6.1235.2 provide for a 10 basis points *ex-ante* allowance which is specified as a basis-point calculation on the RAB which will enter the PQ path as an additional allowance; and

6.1235.3 provide for the process to allow for the shortening of asset lives and alternative depreciation profiles.

Nothing is required within the IMs for the purposes of ID regulation and asymmetric risk

6.1236 Our final decision is that no adjustment for ID regulation through the IMs is required to account for asset stranding risk.

6.1237 Enable, Ultrafast and WIK for Enable and UltraFast submitted that Enable and Ultrafast are subject to greater stranding risk than Chorus because Chorus competes with its copper network in their UFB areas. As such they submitted asset stranding risk adjustments should not be sector-wide but firm specific and they require a higher adjustment than Chorus.¹²⁸⁰

6.1238 We agree that in principle non-systematic stranding risk can be firm specific. However, even with the non-systematic asset stranding risk, it is not clear this requires compensation within the regime for regulated providers subject only to ID regulation.

6.1239 More generally, the purpose of ID regulation is to ensure that sufficient information is readily available to interested persons to assess whether the purpose of Part 6 of the Act is being met.¹²⁸¹ Having profitability information would allow interested parties to undertake *ex-post* profitability analysis. As such, it is comparing actual returns and it is questionable whether we will be making adjustments to those returns through the firms' cash flows. It is one factor, among several, which needs to be taken into account when comparing actual returns to the benchmark cost of capital over time.

6.1240 The regulated fibre service providers subject to ID regulation will be free to publish whatever information they like alongside the required ID disclosures and consequently, for example, could publish their estimates of non-systematic asset stranding risk and how they are providing any contingency to account for this within their cash flows. This could include any evidence to support their submissions that regulated providers not subject to PQ regulation are subject to asymmetric stranding risk. This reasons paper provides one methodology which they could employ. When setting the ID requirements we can consider whether requiring such information to be publicly disclosed better meets the purpose of ID in s 186 of ensuring that sufficient information is readily available to interested persons to assess whether the purpose of Part 6 is being met. In any event we do not consider this is a matter relevant to the IMs relating to the supply of regulated FFLAS.

¹²⁸⁰ Enable and Ultrafast "Submission on NZCC Fibre Regulation Emerging Views: Technical Paper" (July 2019), paragraphs 4.1 to 4.4.

¹²⁸¹ Telecommunications Act 2001, s 186.

6.1241 Furthermore, we can consider any such evidence at the time we carry out summary and analysis on the performance of ID regulated providers.¹²⁸² We will be cognisant of the presence of asset stranding risk when interpreting the results of any *ex-post* analysis of profitability.

6.1242 Castalia in a report for Enable and Ultrafast Fibre has expressed concern that investors may interpret the WACC used for Chorus' PQ path as likely to apply in the event that other LFCs are made subject to PQ regulation.¹²⁸³ We consider that this is likely to be correct and that this would not alter our view. As we have earlier noted, this is largely a non-systematic risk and non-systematic risk does not form part of the cost of capital.

Other options considered

Basing compensation entirely on an ex-ante allowance is not favoured

6.1243 This may be difficult to justify where shortening asset lives would materially mitigate the risk and where we do not exclude assets from the RAB outside of deregulation.

6.1244 Setting up a system to identify and exclude all 'stranded' assets would be complicated, contentious and suffer from asymmetry of information. We do not consider that this would be consistent with the outcomes in s 162(a) or s 162(d) and is unlikely to best give effect to the purpose of s 162. The issues raised in paragraphs 6.1080 to 6.1085.2, explain why we do not consider that it is practical or desirable to eliminate all compensation associated with keeping assets in the RAB.

6.1245 While we recognise the sharing of risks is appropriate, ruling out the use of shortened asset lives entirely may not be to the benefit of end-users where this can substantially mitigate the risk for end-users and regulated providers.

Basing compensation entirely on retaining assets in the RAB is not favoured

6.1246 As we described earlier in paragraphs 6.1084 to 6.1085.2 we consider that there is a material risk of economic stranding where there are insufficient end-users to allow for revenues sufficient to adequately compensate investment.

6.1247 In these circumstances or where there is enough risk these circumstances may come to exist, then we are not providing an *ex-ante* expectation of earning a normal return. Consequently, we consider that this option gives insufficient weight to the

¹²⁸² Under s 187(2)(b) of the Act, if a regulated fibre service provider is subject to ID regulation, we must, as soon as practicable after any information is publicly disclosed, publish (on an Internet site maintained by or on behalf of us) a summary and an analysis of that information for the purpose of promoting greater understanding of the performance of individual regulated fibre service providers, their relative performance, changes in their performance over time, and their ability to extract excessive profits.

¹²⁸³ Castalia "Rate of Return for Information Disclosure Profitability Monitoring of Local Fibre Companies" (August 2019), page 8.

outcome in s 162(a) of regulated providers having incentives to invest and is therefore, unlikely to best give effect to the purpose of Part 6 in s 162.

Basing compensation on a combination of retaining assets in the RAB and shortening asset lives or an alternative depreciation profile is not favoured

6.1248 The normal regulatory approach is to combine retaining assets in the RAB with the option of shortening asset lives if asset stranding risk becomes heightened. Where this is effective in addressing material asset stranding risk, it is an appropriate approach to balance the purpose of Part 6 in s 162 of the Act, largely for the reasons articulated by Dr Lally in Attachment H. In particular:

- 6.1248.1 there are significant difficulties in estimating the quantum of any *ex-ante* allowance; and
- 6.1248.2 there is a greater risk that regulated providers are over-compensated.

6.1249 At this stage we cannot determine if this would best give effect to the outcome in s 162(a) of the Act of regulated providers having incentives to invest, given there are limits, for a new network still seeking uptake. We will be considering smoothing the price shocks to end-users and, if required, this is likely to entail pushing revenue requirements out to the future not bringing them forward.

6.1250 We also consider that allocating some of the risk to regulated providers is to the long-term benefit of end-users for the reasons described in paragraphs 6.1108.

6.1251 Given this, we consider that providing a modest *ex-ante* allowance best gives effect to the purpose in s 162 by balancing the promotion of the outcomes in s 162(a) of regulated providers having incentives to invest while still limiting the ability of the regulated fibre service provider to extract excessive profits, consistent with the outcome in s 162(d).

Chapter 7 Final decisions: Chorus capex IM

Table 7.1 Summary of final decisions on Chorus capex IM

Issue	Final decision
IM structure and key processes - assessment approach and categorisation of capex	<p><i>Ex-ante</i>, propose and respond approach. Capex categorised into base capex, connection capex, and individual capex.</p> <p>Base capex incorporates all forecast capital expenditure except for that covered within connection and individual capex.</p> <p>Connection capex includes Chorus connection expenditure where the communal network already exists or will exist at the time of connection. The approval of connection capex will be separated into two components, a baseline component and a variable adjustment.</p>
IM Structure and key processes - substitution of capex between categories	<p>Base capex is substitutable but separate from both connection capex and individual capex.</p> <p>Individual capex projects and programmes are generally ring-fenced, but this requirement may be waived by the Commission.</p>
IM Structure and key processes - evaluation of capex proposals	Evaluation criteria are based on the capital expenditure objective and good telecommunications industry practice. There are a number of assessment factors, and we must have regard to as many as are relevant when evaluating a capex proposal. We have strengthened these assessment factors. The evaluation criteria will be applied as appropriate considering the different risks and the variable need for oversight from the Commission.
IM Structure and key processes - consultation prior to submitting a capex proposal	Chorus is required to outline its consultation and stakeholder engagement in the Integrated Fibre Plan, and the extent of consultation is also an information requirement and an assessment factor in relation to capex proposals.
IM Structure and key processes - consequences of the Commission missing process time frames	The Commission will notify Chorus and, where relevant, interested persons of the updated timetable as soon as practicable. No impact on determinations already made.
General rules and processes for proposals - capital contributions	All proposed capex and capex allowances must be net of capital contributions.
General rules - certification and audit requirements	Chorus is required to certify and audit capex proposals in accordance with specified requirements.
General rules and processes for proposals - Integrated Fibre Plan	Chorus is required to provide an Integrated Fibre Plan at the same time as it provides its base capex and connection capex baseline proposals. We have updated the requirements and made these more prescriptive.
General rules and processes for proposals - publication of information claimed to be confidential	We may publish information claimed to be confidential by Chorus, if we consider that Chorus does not have a valid claim to confidentiality.

Issue	Final decision
General rules and processes for proposals – Commission consultation	We will consult on base capex and connection capex baseline proposals and have discretionary consultation obligations in relation to individual capex proposals.
Base capex – key time frames and processes	<p>Regulatory templates are to be agreed and an information request issued at least 22 months prior to the start of the regulatory period.</p> <p>Chorus' base capex proposal is to be submitted at least 14 months prior to the start of the regulatory period.</p> <p>For the first regulatory period:</p> <ul style="list-style-type: none"> • the regulatory templates are to be agreed and the information request is to be issued as soon as practicable; • Chorus must submit its base capex proposal as soon as practicable but no later than 31 December 2020.
Base capex - breakdown of expenditure information	Base capex for sub-categories identified within the regulatory templates as requiring geographic information is to be broken down by urban, rural, and any further or other geographical breakdown as set out in the regulatory templates.
Base capex – information requirements	The areas that we may require information for in the base capex information request are outlined in the IM. These have been updated and aligned with the assessment factors.
Base capex – independent verification	From the second regulatory period onwards, Chorus's base capex proposal must be verified by an independent verifier approved by the Commission.
Base capex – base capex allowance determination process and time frames	<p>We are required to make a base capex determination no later than six months before the start of a regulatory period.</p> <p>For the first regulatory period the time frame is three months prior to the regulatory period.</p>
Connection capex – key process and time frames	<p>The connection capex baseline proposal regulatory templates are to be agreed and an information request issued in the same time frames outlined above for base capex.</p> <p>The connection capex baseline proposal is to be submitted at the same time as the base capex proposal.</p> <p>Annual reporting is required on actual connection volumes, unit costs, and updated forecasts.</p>
Connection capex – inclusion of non-linear connection costs	Connection capex may include non-linear connection costs.
Connection capex – information requirements	The areas for which we may require information in the connection capex information request are outlined in the IM. These have been updated and aligned with the assessment factors.
Connection capex – assurance requirements	Director certification of the connection capex baseline proposal and the annual report is required, along with an audit report. From the second regulatory period onwards, Chorus' connection capex baseline proposal must be verified by an independent verifier approved by the Commission.

Issue	Final decision
Connection capex – capex allowance determination processes and time frames	We will determine the connection capex baseline allowance at the same time as our base capex determination. The total connection capex variable component will be determined by applying approved connection capex unit costs for variable connection costs and non-linear connection costs by connection type to the difference between actual connection volumes and forecast connection volumes determined in the baseline component. The connection capex variable adjustment will occur following the end of the regulatory period.
Individual capex – definition, key processes and time frames	Individual capex must relate to a project or programme forecast to cost at least \$5m where the need, economic case and/or timing of the project or programme is uncertain at the time of submitting a base capex proposal or where we are satisfied that the capex for the project or programme should be ringfenced. There is a staged process for applying for individual capex which consists of submitting an individual capex design proposal followed by an individual capex proposal. An individual capex design proposal may be submitted at any time.
Individual capex – ring-fencing of the capex	Individual capex must be additional to any other capex allowance. It is ringfenced unless we determine that a waiver of the ring-fencing requirement is justified.
Individual capex – information requirements	Information requirements are specified for individual capex design proposals, which Chorus must provide, and for information that we may require at either the individual capex design proposal or final individual capex proposal stage.
Individual capex – assurance requirements	Independent verification is required for an individual capex proposal unless we decide that a waiver of the independent verification requirement is justified. An individual capex proposal must be accompanied by CEO certification and an audit report.

The purpose and structure of this chapter

- 7.2 This chapter sets out and explains our final decisions in relation to the Chorus capex IM. The chapter describes:
- 7.2.1 the context for our decisions including our decision-making framework; and
 - 7.2.2 our final decision and reasons.

Context for the Chorus capex IM

- 7.3 Section 176(1)(d) of the Act requires an IM for capital expenditure projects. The capex IM is applicable to PQ regulation and will have an impact on a regulated

provider's incentives to invest (s 162(a)), to improve efficiency and to deliver quality that reflects end-user demands (s 162(b)). It will also limit their ability to extract excessive profits (s 162(d)).

- 7.4 The Chorus capex IM prescribes the processes and rules, including the requirements on Chorus, for how we will assess and approve Chorus' forecast capex for inclusion in the MAR.¹²⁸⁴
- 7.5 In this section we explain the steps and considerations we have taken to develop the capex IM and our decision-making process.

The Act requires IMs that relate to capital expenditure projects

- 7.6 Section 176(1)(d) of the Act requires that FFLAS IMs include, to the extent applicable to the type of regulation under consideration, methodologies for evaluating or determining capital expenditure projects.
- 7.7 Methodologies for capital expenditure projects include:
 - 7.7.1 requirements that must be met by the regulated fibre service provider, including the scope and specificity of information required, the extent of independent verification and audit, and the extent of consultation and agreement with other parties (including access seekers or end-users);
 - 7.7.2 the criteria the Commission will use to evaluate capital expenditure proposals; and
 - 7.7.3 time frames and processes for evaluating capital expenditure proposals, including what happens if the Commission does not comply with those time frames.
- 7.8 We consider that the capex IM is only relevant to regulated providers that are subject to PQ regulation. Our expectation is that Chorus is the only provider that will be subject to PQ regulation for at least the first regulatory period. We have developed the capex IM with Chorus' likely capex profile in mind and therefore refer to the input methodology for capital expenditure projects as the Chorus capex IM.
- 7.9 Should another provider become subject to PQ regulation we will consider whether we need to revisit the current IM to ensure it is fit for purpose for another LFC. This could include considering the applicable capex IM settings such as the rules and processes for evaluating their capex proposals, information requirements and time frames and processes.

¹²⁸⁴ When we refer to MAR, we mean the maximum allowable revenues that can be recovered under a price-quality path.

Decision-making framework

The promotion of the purpose of Part 6: Sections 162 and 166(2)(b)

- 7.10 When determining how the Chorus capex IM will best promote the purpose of Part 6 of the Act, we have considered how our decisions impact on the FFLAS market outcomes in a way that is consistent with outcomes produced in workably competitive markets as set out in s 162(a)-(d). Where relevant, we have considered how our decisions promote workable competition in telecommunications markets more generally as set out in s 166(2)(b).¹²⁸⁵ This consideration has included the likely impacts on Chorus' incentives, as outlined further below.
- 7.11 As noted above, the Chorus capex IM framework contributes to the Part 6 purposes and has potential impacts on workable competition. However, the Chorus capex IM does not direct Chorus to make specific investments and they do not prevent any particular investment.
- 7.12 As explained in paragraph 2.12 to 2.14 in **Chapter 2**, it is the Fibre Deeds that set out specific investment requirements. Chorus is also subject to the provisions of the Commerce Act that prohibit restrictive trade practices and certain business acquisitions.

How the capex IM can help promote section 162

- 7.13 The primary role of the Chorus capex IM is to mitigate over-spending and over-forecasting risks. Capex rules ensure PQ FFLAS end-users do not bear costs that reflect inefficient levels of investment expenditure, and that capex investments are consistent with a workably competitive market. This means the capex processes and rules address both the over-investment incentives and over-forecast risk.
- 7.14 The regulatory framework chapter discusses how the use of a BBM approach for FFLAS creates incentives for Chorus to seek to increase the MAR that they would be allowed to recover from access seekers and ultimately end-users. The higher the MAR, the higher the prices that Chorus would be able to charge for PQ FFLAS.¹²⁸⁶ This results in a risk of Chorus over-forecasting and / or over-spending capex above efficient levels, especially if the regulatory WACC is above Chorus' true WACC.
- 7.15 We also note that Chorus would have an incentive to increase the MAR through actual over-investment in the network if, for example:

¹²⁸⁵ The purpose statements in Part 6 of the Act are discussed in more detail from paragraphs 2.206 to 2.271.

¹²⁸⁶ This is subject to any prices that are set for anchor services under s 227.

- 7.15.1 the cost of capital IM sets rules that result in a favourable regulatory WACC that exceeds the true cost of capital; or
 - 7.15.2 they can benefit from targeted over-investment that in the long-term could lessen competition for the provision of services in competition with Chorus PQ FFLAS in certain geographic areas or product segments.
- 7.16 The Chorus capex IM addresses the risk of over-investment and over-forecasting through the rules designed to scrutinise capex proposals for efficiency and potential impact on market outcomes, before a return on the capex can be added to the costs recovered through the MAR. The Chorus capex IM rules contribute to achieving the Part 6 purposes in s 162 by:
- 7.16.1 ensuring that, over time, any efficiency gains by Chorus are shared with end-users (s 162(c)) – eg, the Chorus capex IM specifies a review of capex allowances at each regulatory reset and any proposed capex allowed into the MAR would be assessed to ensure it reflects efficient forecast costs;
 - 7.16.2 limiting Chorus' ability to extract excessive profits (s 162(d)) – eg, the rules set by the Chorus capex IM seek to identify instances of inflated capex forecasts and adjust the capex allowances accordingly; and
 - 7.16.3 safeguarding Chorus' incentives to invest and innovate (s 162(a)) – eg, by specifying in-period mechanisms that allow for the approval of larger projects or programmes that could not have been foreseen prior to the start of the regulatory period.
- 7.17 An *ex-ante* capex allowance provides an efficiency incentive to outperform the allowance, as Chorus will get to keep any savings it can achieve. This results in potential for under-investment, which may result in a risk to the quality of services provided to access seekers and end-users.
- 7.18 The Chorus capex IM establishes that a key consideration in evaluating expenditure will be how it affects PQ FFLAS quality outcomes. The rules further allow for an evaluation of past expenditure to monitor for delayed investment or repeated capex proposals. However, the Chorus capex IM cannot require expenditure to be invested in specific projects, thus its role in mitigating the risk of under-investment is limited. We note that the risk of under-investment will mainly be mitigated by the quality standards set under PQ regulation. These standards will incentivise Chorus to undertake at least a certain (minimum) capital expenditure to maintain a level of prescribed quality.
- 7.19 Under PQ regulation, the *ex-ante* expectation for a normal return on investment (set out in the cost of capital IM), and allowing Chorus to keep a proportion of the efficiency savings they make during the regulatory period, along with setting quality

standards, help to mitigate the risk that Chorus will over- or under-invest in the PQ FFLAS network. Also, the scrutiny specified in the Chorus capex IM will allow us to consider historical investment to inform the setting of the capex allowance for the subsequent period.

- 7.20 In setting the Chorus capex IM rules, we also considered the incentives that Chorus might have to limit competition, or the potential for competition to emerge, in the market. This s 166(2)(b) obligation and how it is applied is discussed below.

How the capex IM can help promote section 166(2)(b)

- 7.21 We considered whether the Chorus capex IM could be a tool to promote workable competition in telecommunications markets, consistent with s 166(2)(b). When we assessed the relevance of promoting competition to our IM design (see the discussion of our ‘competition screening’ approach in **Chapter 2**), we determined that the rules set by the Chorus capex IM could affect two areas:

- 7.21.1 competition in downstream telecommunications markets; and
- 7.21.2 competition for the provision of alternatives to FFLAS services.

- 7.22 Competition in downstream (retail) telecommunications markets may be affected if the rules are too restrictive. When applied to PQ regulation, this could discourage sufficient investment to meet the quality standards specified under PQ regulation. Lower quality FFLAS could impact access seekers’ ability to compete or innovate in downstream markets. This is particularly the case if the lower quality (selectively) affects FFLAS that are used as inputs to products that compete with FFLAS-based retail services. For example, DFAS is used as an input in mobile broadband, which may compete (at the margin) with FFLAS-based retail services.
- 7.23 The emergence of competition for the provision of alternatives to FFLAS services may be affected if the rules for approving certain categories of capex are too permissive. When applied to PQ regulation this could encourage over-investment in potentially competitive products/areas.
- 7.24 Where we have identified that capex categories have potential implications for promoting workable competition in telecommunications markets, we considered whether the rules applied to encourage efficient levels of investment (per our obligations under s 162) are sufficient to promote competition (eg, as is the case for competition in downstream markets). The alternative is to introduce additional rules to ensure we have taken into account the competition implications when assessing the capex proposal (eg, as may be the case for any capex linked to customer acquisition or retention). We have defined information requirements and assessment factors that will enable us to assess and take account of potential competition implications in our evaluation of capex proposals.

- 7.25 The rules designed by the Chorus capex IM for scrutinising capex proposals for efficiency and potential impact on market outcomes contribute to achieving the objective specified at s 166(2)(b) by:
- 7.25.1 promoting competition in downstream (retail) telecommunication markets – eg, the rules for approving capex consider the linkages between capex and PQ FFLAS quality outcomes. Quality standards that will be set under PQ regulation may assist to encourage sufficient investment in the network to support downstream competition; and
 - 7.25.2 promoting competition (existing or potential) in other telecommunication markets – eg, by considering whether the capex could result in raising rivals' costs through over-investment in quality or penetration.

Relevant economic principles

- 7.26 In developing the Chorus capex IM we considered whether our decisions are consistent with the FCM principle.¹²⁸⁷ The rules set by the Chorus capex IM recognise that their application in PQ regulation should not discourage sufficient investment to meet the quality standards set through the application of the quality IM. This approach to setting the Chorus capex IM is consistent with the FCM principle, and thus also gives effect to the Part 6 purpose at s 162.

Sections 174 and 176(2) - promotion of certainty

- 7.27 Our decisions on the Chorus capex IM are consistent with the requirement in s 174 in that they promote certainty as to the rules, requirements and processes that will be applied under PQ regulation in respect to the overall approach to assessment of Chorus' capex proposals. This is also the case for the approval processes and time frames, evaluation criteria and requirements for audit, certification and independent verification. The specific decisions will help Chorus to estimate the material effects of the IM, in line with our obligation under s 176(2).
- 7.28 The elements of the Chorus capex IM provide certainty to stakeholders in a range of ways. The *ex-ante* assessment approach provides certainty to Chorus and access seekers. The different capex categories ensure there are appropriate mechanisms available to Chorus to deal with uncertainty related to the forecast timing, need for and quantity of expenditure. The time frames, information requirements, and consultation and assurance processes are designed to provide more certainty for stakeholders and confidence in the forecasts and the assessment of the proposals.
- 7.29 The Chorus capex IM also promotes certainty because it fits within the overall regulatory framework, and ensures consistency with other relevant IMs, such as

¹²⁸⁷ For a description of the FCM principle and its relevance to Part 6, see **Chapter 2**.

quality dimensions, asset valuation and cost allocation. We discuss this further below.

Length of regulatory period

- 7.30 The first regulatory period is relatively short compared to price paths set under Part 4 of the Commerce Act 1986. The initial regulatory period for Chorus is three years. This length of time allows us to be flexible in our decisions and make any necessary changes relatively quickly to take account of changes in the market.

Application of the IM through PQ regulation

- 7.31 In implementing the Chorus capex IM through PQ regulation, we will apply proportionate scrutiny to Chorus' capex forecasts. This means that in evaluating Chorus' capex proposals we will apply the level of scrutiny that is commensurate with the potential price and quality impacts of the forecast capex on end-users. This will help us target our evaluation to mitigate the risk that end-users of PQ FFLAS bear costs inconsistent with those that efficient providers would incur when meeting end-user demands in a workably competitive market.
- 7.32 The Chorus capex IM interacts with the wider regulatory framework in a number of ways. These include the following.
- 7.32.1 The rules and processes that will be used to determine an *ex-ante* capex allowance that will apply to the upcoming regulatory period as well as any additional capex allowances during a regulatory period.
 - 7.32.2 The capex allowance determined prior to the regulatory period will be used to calculate and determine the forecast MAR as part of the BBM.
 - 7.32.3 Actual commissioned capex during the regulatory period will go into the RAB, subject to the relevant IMs.
- 7.33 Subsequent regulatory resets that are part of PQ regulation will calculate the MAR using the updated RAB (which will include the actual commissioned capex from the previous regulatory period).
- 7.34 Regulatory resets enable Chorus to pass on to end-users the lower costs that Chorus incurred due to efficiency improvements or from not undertaking forecast capex projects (per the requirements of s 162(c)) since only actual commissioned capex is included in the RAB.
- 7.35 Setting an *ex-ante* capex allowance through the application of the Chorus capex IM rules in PQ regulation introduces an incentive on Chorus to outperform the capex allowance during the regulatory period. There are several ways that Chorus can outperform an *ex-ante* capex allowance including:

- 7.35.1 by improving efficiency and delivering capex at a lower cost than its forecasts;
 - 7.35.2 by investing in fewer assets than the forecast capex allowance provided for; and
 - 7.35.3 by investing in lower quality assets which could in turn result in the provision of lower quality PQ FFLAS to end-users.
- 7.36 The quality standards that will be set in PQ regulation will help mitigate the risk that Chorus earns excessive profits by reducing the quality provided to end-users (per our obligations under s 162(b) and (d)).

Chorus capex IM relationship with other IMs

- 7.37 The Chorus capex IM interacts with the asset valuation IM, cost allocation IM and quality dimensions IM.
- 7.38 Actual commissioned capex (not approved capex) will go into the ID RAB and then inform the next PQ path. This process is underpinned by the rules set for calculating the RAB in the asset valuation IM and by the rules set in the Chorus capex IM for how connection capex variable adjustments and individual capex will be treated.
- 7.39 The cost allocations that result from the application of the cost allocation IM will form part of the assumptions underpinning capex approvals for PQ FFLAS and will be automatically incorporated into the PQ path. Subsequent ID reporting by Chorus will need to be consistent with the cost allocation IM.
- 7.40 Our decisions on the quality dimensions IM set out the mandatory and optional dimensions for which quality standards may be set under PQ regulation. Quality standards will introduce an incentive to ensure sufficient expenditure to maintain a level of prescribed quality. As per the rules in the Chorus capex IM, we will assess the linkages between capex proposals and PQ FFLAS quality outcomes as part of our evaluation of those proposals.
- 7.41 Throughout this chapter we refer to the Transpower capex IM.¹²⁸⁸ We regulate various markets including electricity transmission services. The Transpower capex IM is the closest relevant example of a capex IM already in place. We considered which aspects of the Transpower capex IM may be appropriate in the context of setting a capex IM that best promotes the purpose statements in Part 6 and reflects the incentives Chorus faces.

¹²⁸⁸ Commerce Commission “Transpower Capital Expenditure Input Methodology Determination 2012 (Principal Determination)”, June 2018.

Consultation process on the Chorus capex IM

- 7.42 We have undertaken a series of consultations on the Chorus capex IM. We published our draft decision paper on 19 November 2019 and sought submitters views on the proposed Chorus capex IM.¹²⁸⁹ The draft determination was published on 11 December 2019¹²⁹⁰ which set out the detailed draft terms. We also held a stakeholder workshop on the Chorus capex IM on 12 December 2019.
- 7.43 We received submissions on the draft reasons paper and the determination on 30 January 2020 and cross submissions on 17 February 2020. We then published a further consultation paper¹²⁹¹ and a revised marked-up draft determination on 23 July 2020, which together covered a number of specific Chorus capex IM issues. Submissions were received on the further consultation paper on 13 and 28 August 2020 and cross submissions were received on 3 September 2020.
- 7.44 Some of the main themes that came through in submissions and from our own review were:
- 7.44.1 general support from submitters for the overall approach and structure of the Chorus capex IM, including the categorisation of capex, the evaluation criteria, and the overall processes and time frames;
 - 7.44.2 improvements to the workability of the Chorus capex IM were proposed by a number of submitters;
 - 7.44.3 general support for the inclusion of an Integrated Fibre Plan as part of the minimum information requirements for a base capex proposal;
 - 7.44.4 some submitters suggested strengthening of the assessment factors and better alignment with the minimum information requirements;
 - 7.44.5 similarly, some stakeholders sought greater prescription in the requirements within the IM, including the information requirements, consultation, and assessment factors;
 - 7.44.6 proposals were made for alternatives to the draft audit and certification requirements;

¹²⁸⁹ Commerce Commission “Fibre input methodologies: Draft decision - reasons paper” (19 November 2019).

¹²⁹⁰ [Draft] Fibre Input Methodologies Determination 2020 (11 December 2019).

¹²⁹¹ Commerce Commission “Fibre input methodologies Further consultation draft – reasons paper” (23 July 2020).

- 7.44.7 suggested improvements and greater prescription of the information requirements for the Integrated Fibre Plan; and
- 7.44.8 submissions on the separate connection capex category and the scope of connection costs.

Final decisions

7.45 This section presents our final decisions and rationale for the following aspects of the Chorus capex IM:

- 7.45.1 Chorus capex IM structure and evaluation criteria;
- 7.45.2 General rules and processes for capital expenditure proposals;
- 7.45.3 Base capex;
- 7.45.4 Connection capex; and
- 7.45.5 Individual capex.

Chorus capex IM structure and evaluation criteria

Introduction

7.46 This section describes our final decisions on the Chorus capex IM that affect how the IM is structured and the key processes and time frames. This section covers the following topics:

- 7.46.1 a general explanation of the Chorus capex IM;
- 7.46.2 the assessment approach and categorisation of capex;
- 7.46.3 substitution of capex between and within capex categories; and
- 7.46.4 the evaluation criteria for capex proposals.

General explanation of the Chorus capex IM

- 7.47 The Chorus capex IM prescribes the processes and rules, including the requirements on Chorus, for how we will assess and approve forecast capex for inclusion in Chorus' allowable revenues.
- 7.48 Chorus will submit a capex proposal prior to, and in some cases during, a regulatory period with forecast expenditure along with a justification, and we will assess it according to processes and rules in the Chorus capex IM. From this assessment, a capex allowance for a given regulatory period will be determined.

Definition of ‘capex’

- 7.49 We use ‘capex’ to mean expenditure that has been, or is intended to be, incurred in the acquisition or development of a core fibre asset or UFB asset that is, or is intended to be, commissioned; and would be included in the value of commissioned assets under the asset valuation IM.

Final Decision – Assessment approach and categorisation of capex

- 7.50 Our final decision is to evaluate Chorus’ capex proposals by using an *ex-ante*, propose and respond approach. We have specified three categories for capex:¹²⁹² base capex, connection capex, and individual capex. This decision on our assessment approach and capex categorisation has not changed from the draft decision.

Explanation of our assessment approach and categorisation of capex

- 7.51 We will evaluate capex proposals using an *ex-ante*, propose and respond assessment approach. This type of assessment will promote the purpose of Part 6 by providing Chorus with incentives to improve cost efficiency once a revenue path (allowance) is set, while meeting its quality obligations.
- 7.52 The Chorus capex IM specifies three different expenditure categories: base capex, connection capex, and individual capex. The defining characteristics of each capex category are outlined below.
- 7.53 Following the submission of a capex proposal we will evaluate the proposal and consider approving a capex allowance in accordance with the specific requirements of each capex category.
- 7.54 **Base capex:** Base capex will incorporate all forecast capital expenditure except for capex associated with the connection of end-users (connection capex), and capex that has a high degree of uncertainty as to need, the economic case and/or timing, or the capex we determine should be approved only for the project or programme to which it relates and reported separately from base capex (individual capex). Base capex proposals will be split into expenditure sub-categories, as agreed by the Commission and Chorus prior to the proposal submission as part of the regulatory templates process (refer to Final decision – information requirements below).
- 7.55 **Connection capex:** Connection capex is expenditure associated with the connection of end-user premises where the communal fibre network already exists or will exist at the time of connection. This includes capex related to brownfield, greenfield and infill connections, and Chorus initiated migrations from copper to PQ FFLAS.
- 7.56 Connection capex will be split into two elements:

¹²⁹² Fibre Input Methodologies Determination 2020 (13 October 2020), clause 3.7.1(1).

- 7.56.1 A baseline allowance that is approved alongside base capex. The connection capex baseline allowance will include connection capex that is regarded as relatively certain to be required over the regulatory period and will include connection capex unit costs and forecast volumes by connection type. The Commission will determine the connection capex unit costs and connection types when determining the baseline allowance; and
 - 7.56.2 A variable adjustment that represents the difference between the baseline allowance, based on forecast connection volumes, and the actual connection volumes for the regulatory period. The variable adjustment will be based on the same connection capex unit costs used to determine the baseline allowance. The connection capex unit costs are comprised of variable connection costs, which vary linearly with the volume of new end-user connections for each connection type, and non-linear connection costs, which vary with the volume of new end-user connections in accordance with specified non-linear connection cost functions.¹²⁹³
- 7.57 **Individual capex:** Individual capex covers larger projects and programmes, where the level of uncertainty associated with the forecast expenditure means that it is hard to evaluate at the time of base capex approval or we have determined that specific capex within a base capex proposal should be instead ring-fenced as individual capex. Individual capex proposals will have the following characteristics.
- 7.57.1 Individual capex must relate to a PQ FFLAS project or programme with a forecast capex of at least \$5m over the life of the project or programme.
 - 7.57.2 The need, economic case and/or timing of the project or programme cannot be defined or assessed sufficiently at the time of submitting the base capex proposal; or we determine that specific capex should be approved only for the project or programme to which it relates and reported separately.
 - 7.57.3 There will be a staged application process for individual capex to allow for the timely approval of expenditure.

¹²⁹³ To account for demand uncertainty the Chorus capex IM requires Chorus to propose unit costs for connections, by connection type, along with a forecast connection volume, at the same time as the base capex proposal. The Commission will determine these elements as part of the connection capex baseline allowance. A connection capex variable adjustment will be determined at the end of the regulatory period after the Commission receives the connection capex annual report for the last regulatory year of the regulatory period.

- 7.57.4 The first stage of the process is the notification of the project or programme through submission of an individual capex design proposal. We will then consider whether to approve the design proposal.
- 7.57.5 The second stage of the process is the submission of the final individual capex proposal, which we will evaluate and, if approved, determine an individual capex allowance for.¹²⁹⁴
- 7.58 Assurance requirements apply to all three capex categories. These requirements include audit, certification and independent verification (IV). The assurance requirements for each capex category are described in more detail within each capex category section below, and the general requirements applicable to all capex categories are described in the Final Decision – general audit and certification requirements section below.
- 7.59 For the first regulatory period (PQP1) we have established transitional arrangements into the processes for base and connection capex. We aimed to limit the number of transitional arrangements and have only introduced such arrangements when it was clear specific requirements would not be feasible for the first regulatory period. These transitional arrangements are required due to the time frames that we are required to operate in for PQP1.
- 7.60 We received several submissions from stakeholders on transitional arrangements for the first regulatory period. Some submitters acknowledged the unique circumstances facing Chorus as it moves to a new regulatory framework. Other submitters raised concerns about removing or reducing requirements on Chorus for the first regulatory period.
- 7.61 The transitional arrangements for the first regulatory period consist of the following elements:
 - 7.61.1 We will issue information requests and agree regulatory templates as soon as practicable;
 - 7.61.2 Chorus is required to submit a base capex proposal as soon as practicable but no later than 31 December 2020. The connection capex baseline proposal is due at the same time as the base capex proposal;
 - 7.61.3 Chorus is not required to submit an IV report with their base capex and connection capex baseline proposals for PQP1; and

¹²⁹⁴ The staged process allows for the specification of contingent conditions on the approval of expenditure.

- 7.61.4 We are required to make our base capex and connection capex baseline determinations no later than 3 months prior to the start of PQP1.
- 7.62 We have included a more detailed explanation of the transitional arrangements within each of the capex category process and timeline sections below, including how we have addressed stakeholders' views.
- 7.63 **Figure 7.1** summarises the three capex categories determined in our decision and their associated approval mechanisms and the relative timing prior to or during a regulatory period.

Figure 7.1 Approach to approving different capex categories in the Chorus capex IM

	Approval prior to PQP	Approval during and/or after PQP
Base capex	<ul style="list-style-type: none"> Separated by expenditure sub-category Regulatory templates (including base capex sub-categories) agreed, and information request issued, before submission date Once approved, expenditure is substitutable within base capex allowance Proposal submitted no later than 31 December 2020 and no IV for PQP1 	<ul style="list-style-type: none"> Propose and respond Evaluation based on expenditure objective, good telecommunications industry practice and assessment factors
Connection capex	<ul style="list-style-type: none"> Baseline + variable component Volumes and unit costs for different connection types for each year of PQP Once approved, expenditure is not substitutable with base capex allowance No IV for PQP1 	<ul style="list-style-type: none"> Baseline component based on forecast volumes Pre-approval of unit costs by connection type Evaluation based on expenditure objective, good telecommunications industry practice, and assessment factors
Individual capex	<ul style="list-style-type: none"> Larger projects and programmes Expenditure > \$5m threshold For expenditure with significant uncertainty at time base capex is assessed or if determined it should be ring-fenced from base capex Additional to base and connection capex Expenditure is generally ring-fenced, with waiver if justified Commission has discretion on whether an IV is required 	<ul style="list-style-type: none"> Propose and respond Staged approval Evaluation based on expenditure objective, good telecommunications industry practice, and assessment factors Note that Chorus may also apply for individual capex at any time including prior to the start of PQP

Submissions received on our assessment approach and categorisation of capex

- 7.64 We received submissions on our approach, level of prescription, and definition of the capex categories. There was general support from submitters for our overall assessment approach to capex proposals and for the capex categorisation.

- 7.65 There was general alignment among submitters on the use of an *ex-ante* propose and respond approach to our evaluation. 2degrees,¹²⁹⁵ Vocus,¹²⁹⁶ and Chorus¹²⁹⁷ supported our *ex-ante*, propose and respond and evaluation approach.
- 7.66 We received a mix of submissions on our draft decision addressing the level of prescription within the Chorus capex IM. Chorus supported our approach of having a less prescriptive, principles-based IM. In contrast, 2degrees and Vocus sought more prescription.
- 7.67 2degrees submitted that a higher level of prescription, more in line with the Transpower capex IM, would provide greater certainty.^{1298,1299} In their submission on our draft determination Vocus stated “the Fibre Capex IM should provide more direction in terms of the evidence required to justify capex proposals”.¹³⁰⁰
- 7.68 As a result of submissions, we have increased the level of prescription within the Chorus capex IM within specific areas where we considered increasing the level of prescription would result in outcomes that better promote the purposes of Part 6 by providing more certainty to Chorus and stakeholders. The areas we have made more prescriptive include the specification of information required in capex proposals and the assessment factors we must have regard to when evaluating capex proposals where relevant. These areas are discussed further in the sections below.
- 7.69 Chorus did not agree with the ring-fencing of base capex and connection capex as two discrete categories. This is discussed in the *Final decision – Substitution of capex between and within capex categories* section (starting at paragraph 7.83 below).

Rationale for our final decision: assessment approach and capex categorisation

- 7.70 We consider that utilising an *ex-ante* propose and respond assessment approach best promotes the purposes of Part 6 by providing incentives for Chorus to improve the efficiency of their operations. We note that our approach is similar to the approach we have successfully utilised for other regulated utilities under Part 4.
- 7.71 Approving capex allowances provides Chorus with incentives to improve cost efficiency once a revenue path (allowance) is set. However, the *ex-ante* nature of the approvals also provides Chorus with incentives to overstate the capex allowance it

¹²⁹⁵ 2degrees “Commerce Commission Fibre Input Methodologies Submission” (30 January 2020), page 9

¹²⁹⁶ Vocus “Draft Fibre Input Methodologies Determination - Submission to Commerce Commission” (28 February 2020), paragraph 1

¹²⁹⁷ Chorus “Submission on Fibre input methodologies: Draft decision” (30 January 2020), page 84

¹²⁹⁸ 2degrees “Commerce Commission Fibre Input Methodologies Submission” (30 January 2020) page 5

¹²⁹⁹ 2degrees “Commerce Commission Fibre Input Methodologies Further Consultation – Draft Reasons paper & Determination 2020” (3 September 2020), page 2

¹³⁰⁰ Vocus “Draft Fibre Input Methodologies Determination - Submission to Commerce Commission” (28 February 2020), paragraph 6

needs during a regulatory period. If we approve inflated capex allowances, then Chorus will be able to earn additional profits without improving its efficiency (compromising the outcome set out in s 162(d)).

- 7.72 As such, the introduction of capex categorisation, specification of evaluation criteria, processes and information requirements, along with relevant assurance requirements are all important components of an *ex-ante* propose and respond assessment approach. These aspects are described further in the sections below.
- 7.73 We considered the alternative of implementing a more prescriptive assessment approach that would involve us taking a lead role in modelling and forecasting all expenditure for the upcoming regulatory period. However, that assessment approach is likely to significantly limit the incentives on Chorus to find efficiencies and be less responsive to environmental changes. We consider that a less prescriptive, propose and respond approach to the assessment of capex proposals will best give effect to the Part 6 purpose in s 162. Chorus is best placed to propose capex forecasts for the upcoming regulatory period, which we will then evaluate. We note that in some cases, a targeted in-depth review of selected projects and programmes may be required to ensure the evaluation criteria has been met.
- 7.74 We also consider that at a general level the level of prescription within the Chorus capex IM is appropriate for a propose and respond approach. Where submitters have proposed improvements to specific topics we have considered these within our final decisions on the IM. These areas include increased information requirements, and the specification of additional assessment factors that we must, where relevant, have regard to when evaluating a capex proposal. More details on the areas where we have included further prescription are discussed as relevant in each section.
- 7.75 Regarding the categorisation of capex between base, connection and individual capex, we have made the distinction between different categories to cater for capex with different levels of uncertainty. Categorising capex reduces the risks associated with under or over-forecasting expenditure that is uncertain at the time of considering the *ex-ante* capex proposal. This enables us to best promote the s 162 purpose. Categorisation also provides the opportunity to provide greater detail and therefore improved certainty to Chorus on the processes, time frames and approach to evaluating different types of capex.
- 7.76 Categorising different capex means we can ascribe different processes and rules for each category. This enables us to vary the level of scrutiny we apply to different types of capex as well as apply different time frames and processes to approving different types of capex. These different time frames and processes enable us to address timing and cost uncertainty. Applying different approaches for different categories of capex also means that we can ensure the appropriate level of resources utilised by Chorus, the Commission, and other stakeholders in developing

and assessing capex proposals. This means regulatory burden will be appropriate for each type of capex proposal.

- 7.77 Our decision to categorise capex recognises the trade-offs between promoting incentives to innovate and invest (per the purpose at s 162(a)) and supporting improving efficiency and limiting Chorus' ability to earn excessive profits (per the purposes at s 162(b) and (d)).
- 7.78 A key driver of our decision to categorise different types of capex is to address uncertainty about a project or programme's need, economic case and/or timing that arises from approving *ex-ante* capex. If cost forecasts are too low and the *ex-ante* capex allowance is too small, Chorus may need to invest anyway to comply with quality standards set under PQ regulation. Any resulting over-spending during the regulatory period will reduce returns below the regulated WACC (compromising the outcomes set out in s 162(a)).
- 7.79 Similarly, because of the *ex-ante* nature of the capex approval process end-users are exposed to risks of paying more (or less) for regulated PQ FFLAS as a result of variations in capex unrelated to Chorus' cost efficiency or performance. The more uncertain costs are, the greater the risks of Chorus and its customers bearing costs (or receiving benefits) that arise from unforeseen variations in capex. Without mitigation, these risks can result in outcomes that are not consistent with the outcomes observed in workably competitive markets (eg, in end-users paying for more than efficient costs due to unforeseen deviations from the approved capex).
- 7.80 By introducing different categories of capex, we can address the risk that end-users pay above the efficient level of capex while still maintaining incentives for Chorus to invest in PQ FFLAS.
- 7.81 In summary, our decision to categorise capex provides certainty (s 174) to Chorus on their ability to obtain approval for efficient capex in a timely manner and with a compliance burden tailored to the size of the capex proposal. This is achieved by providing a mechanism for the timely approval of capex and ensuring that there are appropriate mechanisms to deal with significant uncertainty, such as the demand for PQ FFLAS that is addressed through the connection capex variable adjustment.
- 7.82 This approach helps to mitigate the impact of forecast uncertainty on end-users, which may include higher costs due to over-forecasting or lower quality due to under-investment.

Final decision – Substitution of capex between and within capex categories

- 7.83 Our final decision on substitution of capex between and within capex categories is that:

- 7.83.1 all expenditure within base capex is substitutable;¹³⁰¹
 - 7.83.2 connection capex is not substitutable with base capex or individual capex; and
 - 7.83.3 individual capex is not substitutable with either base capex or connection capex or other ring-fenced individual capex, unless we determine that the ring-fencing of the individual capex can be waived for a specific project or programme. Individual capex that is not ring-fenced will be able to be substitutable with base capex.
- 7.84 Our final decision includes minor changes from our draft decision.

Explanation of the substitutability between and within capex categories

- 7.85 All base capex is substitutable within the base capex category. This means that the Chorus capex IM does not include requirements that commit Chorus to deliver specific identified investments in its base capex proposal.
- 7.86 The ability to substitute capex within the base capex category and across years within a regulatory period allows Chorus to prioritise its capex investments during a regulatory period. This includes prioritising capex in response to changing market circumstances and provides the opportunity for Chorus to improve its efficiency. We acknowledge that Chorus will be best placed to run its business processes and make decisions on investment during the regulatory period.
- 7.87 We have decided connection capex will not be substitutable with base capex or individual capex. In this way, connection capex will be separately identifiable, and clearly separate from the base capex and individual capex categories.
- 7.88 We received a number of submissions from Chorus on the separation of connection capex into a discrete category, along with submissions on the substitutability of connection capex with base capex.
- 7.89 However, a key feature of connection capex is that it is demand driven and therefore contains a relatively high degree of uncertainty relating to the timing of the investment. We have included an adjustment mechanism for connection capex at the end of the regulatory period to address this forecast uncertainty. We consider that the separate category and adjustment mechanism accounts for the dynamics and uncertainty in the telecommunications industry associated with fibre uptake, while not reducing Chorus' incentives for the efficient management of base capex.

¹³⁰¹ This means that actual capex for expenditure sub-categories or regulatory years may vary from forecast capex provided that total capex remains below the approved base capex allowance for the regulatory period.

- 7.90 We acknowledge that there are a range of costs that may bear some relation to demand. However, the connection capex adjustment mechanism is primarily designed to address those cost components most directly impacted by fibre uptake uncertainty. We discuss separately our decision to clarify the scope of connection costs.¹³⁰² Further, Chorus is required to submit the connection capex baseline proposal at the same time as the base capex proposal, and as such we would expect the proposed capex included within each capex proposal to be co-ordinated and aligned.
- 7.91 We have decided that individual capex should be ringfenced and not substitutable with base capex, connection capex, or other individual capex proposals. Following submissions on our draft decision, we recognise there are some circumstances where allowing for substitutability of individual capex with base capex may result in more efficient outcomes and better promote the purposes of Part 6. Therefore, in our final decision we have allowed for a waiver to the ring-fencing of individual capex to be granted where there is a case to do so.
- 7.92 All individual capex must be additional to base capex and connection capex. Individual capex proposals will either be initiated by Chorus to meet a specific investment need or they will relate to a particular capex sub-category or sub-categories that we determine should be ring-fenced from base capex. Having the ability to ringfence individual capex will help us to separately assess and monitor these projects and programmes.

Submissions received on the substitutability of capex between and within capex categories

- 7.93 Chorus submitted that connection capex and base capex should be managed as one fungible capex category and not discrete categories.¹³⁰³
- 7.94 Chorus also stated that including both base and connection capex in a single proposal will lessen duplication and reduce administrative costs for both Chorus and the Commission.
- 7.95 Chorus submits that this approach recognises that connections are not fully discrete activities but are integrated into their overall plans and reduces proposal duplication. Their rationale for combining connection capex and base capex appears to be based on the need for co-ordination of capital works planning and budgeting, tracking and management of costs within their business, and minimising administration costs for both Chorus and the Commission.

¹³⁰² Refer to paragraphs 7.384 to 7.386 for our decisions on the scope of connection costs.

¹³⁰³ Chorus “Submission on Fibre input methodologies: Draft decision” (30 January 2020), paragraph 355 and 359

- 7.96 We also received submissions on the ring-fencing of individual capex. Chorus submitted that ring-fencing is:¹³⁰⁴

problematic where the proposal is for a particular outcome or output (rather than a particular asset) or where the investment involves modifying a stream of investment in multiple assets.

- 7.97 Chorus recommended that:¹³⁰⁵

individual capex proposals should include proposed treatment and supporting rationale, and that the Commission should have a discretion as to whether to ring-fence the expenditure.

- 7.98 As we have noted previously, in contrast to Chorus, 2degrees and Vocus supported the proposed capex categorisation.^{1306 1307}

Rationale for our final decision: the substitutability of capex between and within capex categories

- 7.99 We consider it is appropriate to approve a significant proportion of expenditure *ex ante* via evaluation of a base capex proposal. Within the base capex category, substitutability of capex creates incentives for efficiency as:

- 7.99.1 Chorus can reprioritise expenditure to align with end-user requirements; and
- 7.99.2 Chorus can find efficiencies within a capex allowance.

- 7.100 A primary risk for end-users is the over-forecasting of connection volumes and connection costs. As stated by Chorus in their support for the capex categorisation, the connection capex category addresses:

uncertainty by recognising that connection capex should not be locked into an allowance on a forecast basis without *ex-post* adjustment.¹³⁰⁸

- 7.101 Our decision on the non-substitutability of connection capex with base capex assists in mitigating the over-forecasting risk while providing certainty for Chorus that its capex allowance will be adjusted for actual fibre demand, which may be difficult to forecast.

¹³⁰⁴ Chorus “Submission on Fibre input methodologies: Draft decision” (30 January 2020), paragraph 373

¹³⁰⁵ Chorus “Submission on Fibre input methodologies: Draft decision” (30 January 2020), paragraph 374

¹³⁰⁶ 2degrees “Commerce Commission Fibre Input Methodologies Submission” (30 January 2020), page 9

¹³⁰⁷ Vocus “Draft Fibre Input Methodologies Determination Submission to Commerce Commission” (28 February 2020), paragraph 1

¹³⁰⁸ Chorus “Submission on Fibre input methodologies: Draft decision” (30 January 2020), page 84

- 7.102 Allowing substitution of the forecast connection capex with base capex, as sought by Chorus, removes effective mitigation of the over-forecasting risk and has the potential to significantly reduce the incentives for efficient management of base capex costs. Therefore, we consider that retaining the separation between connection capex and base capex categories is preferable.
- 7.103 We do not consider that administration and co-ordination of field work constitutes a material reason to allow for substitutability between connection and base capex, nor to simplify the capex categories into one. Co-ordination and the efficient delivery of capital works can be undertaken irrespective of the capex categorisation.
- 7.104 Our expectation is that field implementation would be optimised across all expenditure in order to ensure efficient operation by the supplier. Costs associated with implementation should be tracked, irrespective of the capex category under which they are approved, and as such the approval structure does not limit the field application.
- 7.105 There is nothing to limit the connection capex baseline proposal referencing relevant material within the base capex proposal. Given that both are being developed concurrently by Chorus, we consider that co-ordination between the proposals should not be a significant hurdle to providing good quality documentation.
- 7.106 Our draft decision was not to allow individual capex to be substitutable with base capex or other individual capex proposals. This meant that individual capex proposals initiated by Chorus would meet a specific investment need or relate to a particular capex sub-category that was additional to base capex. Ring-fencing individual capex also helps us to separately assess and monitor these projects or programmes.
- 7.107 However, we accept Chorus' view that in some circumstances ring-fencing may lead to less efficient outcomes:
 - where the proposal is for a particular outcome or output (rather than a particular asset) or where the investment involves modifying a stream of investment in multiple assets.¹³⁰⁹
- 7.108 Therefore, our final decision is to retain the requirement for the individual capex to be additional and separate to base capex, but to allow the Commission to waive the requirement that individual capex is not substitutable with base capex or other individual capex proposals. In the instances where the Commission considers that a waiver is justified, such individual capex will be able to be substitutable with base capex.

¹³⁰⁹ Chorus "Submission on Fibre input methodologies: Draft decision" (30 January 2020), paragraph 373

- 7.109 In some circumstances, substitutability between base capex and individual capex may lead to more efficient outcomes that best promote the purposes of Part 6 and those of the IMs. Retaining our discretion over the granting of a waiver ensures the appropriate incentives on Chorus and retains an appropriate level of governance and evaluation of the case for any waiver being granted.
- 7.110 Within its individual capex application, Chorus must provide information on any impact that the proposed individual capex will have on PQ FFLAS quality outcomes, any previously determined or forecasted base capex and operating expenditure, and where it seeks a waiver, sufficient information and reasons to assist the Commission in deciding whether a waiver is justified.
- 7.111 The Chorus capex IM includes matters that we will have regard to when deciding whether or not to waive the requirement to ring-fence an individual capex proposal. These matters include the characteristics of the project or programme and the need to identify and distinguish the expenditure from other base capex.

Final decision - Evaluation criteria for capex proposals

- 7.112 Our final decision is that we will evaluate a capex proposal by considering whether it meets the capital expenditure objective and reflects good telecommunications industry practice.
- 7.113 When evaluating a capex proposal, we must have regard to relevant listed assessment factors. Our final decision reflects our original policy intent but makes it more explicit that we must have regard to as many of the assessment factors as are relevant.

Explanation of the evaluation of capex proposals

- 7.114 We will evaluate a base capex proposal, a connection capex proposal or an individual capex proposal by considering whether the capex meets the capital expenditure objective and reflects good telecommunications industry practice.
- 7.115 The capital expenditure objective is defined as capital expenditure that reflects the efficient costs that a prudent fibre network operator would incur to deliver PQ FFLAS of appropriate quality during the relevant regulatory period and over the longer term.
- 7.116 Good telecommunications industry practice is defined as meaning the exercise of a degree of skill, diligence, prudence, foresight and economic management, that would reasonably be expected from a skilled and experienced asset owner engaged in the management of a fibre network under comparable conditions. A decision on good telecommunications industry practice should take into account domestic and international best practice, including international standards and factors such as the

relative size, age and technology of the relevant fibre network, and domestic regulatory and market conditions, including applicable law.

- 7.117 We have also introduced assessment factors that we must have regard to, where relevant, when evaluating whether a capex proposal meets the capital expenditure objective and reflects good telecommunications industry practice. The assessment factors provide clarity and certainty to Chorus and stakeholders on the different aspects of prudence and efficiency that we consider may be relevant when evaluating capex proposals.
- 7.118 The Commission must have regard to as many of the following assessment factors, as are relevant, when evaluating a capex proposal:
- 7.118.1 whether the proposed capex complies with all applicable legal and regulatory obligations associated with the provision of PQ FFLAS;
 - 7.118.2 governance relating to proposed capex, including evidence that appropriate policies and processes have been applied;
 - 7.118.3 historic capital expenditure and consideration of historic rates of investment;
 - 7.118.4 quantitative or economic analysis related to the proposed capex, including sensitivity analysis and impact analysis undertaken;
 - 7.118.5 approach to forecasting capital expenditure, including models used to develop the capital expenditure forecasts;
 - 7.118.6 relevant financial information including evidence of efficiency improvements in proposed capex;
 - 7.118.7 competition effects, including specific information for categories of capital expenditure that have potential impacts on competition in PQ FFLAS and other telecommunications markets;
 - 7.118.8 the linkages between the proposed capex and quality, including the impact the capital expenditure would have on PQ FFLAS quality outcomes;
 - 7.118.9 consideration and analysis of alternatives to the proposed capex, including the impact of the alternatives on PQ FFLAS quality outcomes;
 - 7.118.10 the extent and effectiveness of consultation and engagement with stakeholders and the extent that feedback received has been incorporated into the capex proposal;
 - 7.118.11 procurement, resourcing, and deliverability of the proposed capex;

- 7.118.12 common costs and benefits between PQ FFLAS, FFLAS classes and services that are not regulated FFLAS;
 - 7.118.13 fibre asset and fibre network information;
 - 7.118.14 mechanisms for controlling actual capital expenditure with respect to the proposed capex and achieving the PQ FFLAS quality outcomes;
 - 7.118.15 the extent of the uncertainty related to the:
 - 7.118.15.1 need for the proposed capex;
 - 7.118.15.2 economic case justifying the proposed capex; and
 - 7.118.15.3 timing of the proposed capex;
 - 7.118.16 the extent that a risk-based approach has been applied;
 - 7.118.17 the impact that the proposed capex has on layer 1 PQ FFLAS;
 - 7.118.18 the dependency and trade-off between the proposed capex and related operating expenditure to ensure least whole-of-life cost for managing assets and cost-efficient solutions;
 - 7.118.19 the accuracy and reliability of data; and
 - 7.118.20 the reasonableness of the key assumptions, methodologies, planning and technical standards relied upon.
- 7.119 Following submissions on our draft decision we have increased the level of prescription in the assessment factors. We have also increased the level of prescription within the information requirements we may include in an information request and aligned the assessment factors and the list of information requirements. While this is not a change to the policy intent, we consider it adds clarity and provides additional certainty to both Chorus and other stakeholders. It also addresses some of the points made by 2degrees and Vocus on the overall level of prescription within the IM.
- Submissions received on the evaluation criteria*
- 7.120 In response to our draft decision, we received a number of submissions on the evaluation criteria for capex proposals. There was broad agreement with the expenditure objective and the use of good telecommunications industry practice in assessing capex proposals. However, some submitters did raise concerns over the apparent low level of prescription of the evaluation criteria (and associated information requirements). Stakeholders felt there was a risk that Chorus has an incentive to artificially inflate and over-forecast its expenditure proposal. Submitters

considered that the level of prescription prescribed in the draft decision would give Chorus too much discretion over the evidence they provide for capex proposals and not enable a robust evaluation of these risks.^{1310 1311}

- 7.121 We note the concerns expressed by multiple stakeholders over the level of prescription in the evaluation criteria and associated information requirements. We acknowledge the potential detriment of Chorus over-investing or over-forecasting. We consider our approach in the capex IM in conjunction with the other price-quality IMs will help mitigate these incentives. We explain our reasons for our approach in more detail in the rationale section.
- 7.122 We received a number of submissions on the type of assessment factors included in the IM as well as on the way we proposed to apply the factors in our evaluation.
- 7.123 In response to our draft decisions, Chorus submitted that:¹³¹²

We have concerns as to whether the capex assessment factors will ensure predictable treatment of network expansion investments. There is value in developing clearer economic criteria upfront, but we appreciate this is unlikely to occur prior to submission of our RP1 PQ proposal. We anticipate that economic criteria and considerations for network expansion is an area where we could lead engagement ahead of our RP2 proposal.

- 7.124 We consider that we can assess this type of capex using the evaluation criteria to approve capex that best promotes the purpose of part 6 (s166(2)). Our approach to setting information requirements for base capex, connection capex baseline and individual capex proposals can help us assess this type of capex against the expenditure objective. Therefore, we consider that the evaluation criteria we have established are clear and provide consistency across capex types and proposals.
- 7.125 2degrees, Vocus, and Vector also suggested other factors that the Commission should include in the capex IM:

- 7.125.1 the Commission's evaluation of capex proposals should include testing the reasonableness of key assumptions;¹³¹³
- 7.125.2 Chorus should be required to undertake cost benefit analysis, including quantification of the net expected benefits from its capex

¹³¹⁰ 2degrees "Commerce Commission Fibre Input Methodologies Submission" (30 January 2020), page 11

¹³¹¹ Vocus "Draft Fibre Input Methodologies Determination - Submission to Commerce Commission" (28 February 2020), paragraph 9

¹³¹² Chorus "Submission on Fibre input methodologies: Draft decision" (30 January 2020), paragraphs 377, 378, 380

¹³¹³ 2degrees "Commerce Commission Fibre Input Methodologies Submission" (30 January 2020), page 3

- proposals, sensitivity analysis, an investment test and evidence of consideration and evaluation of alternative options;¹³¹⁴
- 7.125.3 there should be consideration of efficiency of unbundling and access for limiting unnecessary capital investment;¹³¹⁵ and
- 7.125.4 the assessment factor relating to Chorus' customer consultation should be strengthened.¹³¹⁶
- 7.126 We agreed with 2degrees' submission on consultation and have expanded on the assessment factors to include consideration of the extent to which Chorus' consultation effectively engaged with stakeholders on its capex proposal.
- 7.127 We have also introduced the following assessment factors to address stakeholder submissions:
- 7.127.1 the reasonableness of the key assumptions, methodologies, planning and technical standards relied upon;
 - 7.127.2 the impact that the proposed capex has on layer 1 PQ FFLAS; and
 - 7.127.3 quantitative or economic analysis related to the proposed capex, including sensitivity analysis and impact analysis undertaken.
- 7.128 In our draft determination, we stated that, to the extent relevant, we must have regard to the assessment factors when assessing expenditure proposals. In response to our draft decision and our draft reasons paper, Chorus submitted that it is important to have clarity on how the Commission will assess proposals and to be clear on how proportionate scrutiny will apply. Chorus stated that:
- Applying the principle of proportionate scrutiny, we anticipate that the Commission will consider each factor only to the extent it's relevant. It would be helpful if the Commission could confirm that this will in fact be the approach.¹³¹⁷
- 7.129 When we published our further consultation determination, the reference to the relevance of an assessment factor was left out. Chorus raised concerns in their submission on the further consultation IM determination that the requirement to have regard to assessment factors was too prescriptive and would require too high a

¹³¹⁴ Vocus "Draft Fibre Input Methodologies Determination - Submission to Commerce Commission" (28 February 2020), paragraph 27(ii)

¹³¹⁵ Vector "Vector Communications Submission to the Commerce Commission Fibre Input Methodologies Project" (30 January 2020), paragraph 57

¹³¹⁶ 2degrees "Commerce Commission Fibre Input Methodologies Submission" (30 January 2020), page 20

¹³¹⁷ Chorus "Submission on Fibre input methodologies: Draft decision"(30 January 2020), paragraph 380

level of detail for their capex proposals. Chorus added that this would make the submission date for the first capex proposal particularly unworkable. Chorus proposed amending to require the Commission to consider the assessment factors in the evaluation only where relevant.¹³¹⁸

- 7.130 In its cross submission, 2degrees raised concerns about further weakening the assessment factor requirements in the capex IM. 2degrees stated that Chorus' proposal:¹³¹⁹

would create considerable uncertainty, including for Chorus, as there would be scope for potentially different rules and evaluation criteria to be used for each of its capex proposals and for this to change over time. The Commission would have the freedom to shift the goal-posts for how capex proposals are evaluated, even after Chorus has prepared its proposal and supporting evidence. We continue to support the considerable improvements the Commission has made to the draft Chorus Capex IM.

- 7.131 We consider that the proposed inclusion of the words 'to the extent relevant' from Chorus reflects our policy intent and improves the workability of the IM by clarifying how the assessment factors will be applied in practice.
- 7.132 In response to our draft decision, Chorus also proposed that we consider the principle of transition as an aspect of proportionate scrutiny in our evaluation of expenditure proposals. Chorus suggested that we take into account where Chorus is on its asset management journey, noting Chorus is transitioning into a new regulatory framework and that will necessarily require a period of development and adaptation.
- 7.133 We do not consider that a principle of transition should be included in the Chorus capex IM. We do not think a principle of transition would materially improve certainty for Chorus and stakeholders, and our approach to evaluation needs to be one that best promotes the purposes of Part 6. However, we anticipate that Chorus' capex proposals and our evaluation approach are likely to mature over time as Chorus reviews and changes its asset management practices, and as we gain experience in applying the rules and processes set out in the capex IM. We have also included a number of transitional provisions in the IM, to account for the shorter time frames applicable in the transition to the new regulatory framework.

Rationale for our final decision: evaluation criteria

- 7.134 In this section we describe:

¹³¹⁸ Chorus "Fibre input methodologies – further consultation draft reasons paper" (13 August 2020), paragraphs 99 to 104

¹³¹⁹ 2degrees "Commerce Commission Fibre Input Methodologies Further Consultation – Draft Reasons paper & Determination 2020" (3 September 2020), page 2

- 7.134.1 how our decisions on the evaluation criteria best promote the purpose statements in Part 6, including s 166(2)(b);
- 7.134.2 why we have aimed for a flexible approach to evaluating expenditure;
- 7.134.3 how we have considered market specific factors in our evaluation criteria;
- 7.134.4 what alternative options we considered;
- 7.134.5 how our decisions provide certainty for stakeholders;
- 7.134.6 examples of precedent we have considered in assessing expenditure where prudent network operator and good industry practice has been used as evaluation criteria; and
- 7.134.7 why we think it is appropriate to apply the evaluation criteria to all types of capex.

Setting evaluation criteria enables us to meet the objectives described in s 166(2)

- 7.135 Forecast capex should reflect the efficient costs of a prudent supplier. Through an evaluation, we aim to limit Chorus' ability to over-forecast their investment needs for a given regulatory period. This in turn will limit Chorus' ability to extract excessive profits while preserving incentives to improve efficiency (s 162(b) and (d)).
- 7.136 We consider that the 'prudent' fibre network operator expenditure objective is appropriate in the telecommunications context, as the concept of prudence will take account of the industry and market context.
- 7.137 The evaluation criteria, including the assessment factors that support the evaluation of the proposed capex against the capital expenditure objective and good telecommunications industry practice, will enable us to identify and evaluate where good asset management has been applied. We consider that good asset management will be important for Chorus to ensure capex meets the expenditure objective. We have experience using similar evaluation criteria in the Part 4 regime. We consider that a similar approach can be applied to the Part 6 regime, while reflecting the fibre context.
- 7.138 We have addressed the requirement in s 166(2)(b) to promote competition in telecommunications markets to the long-term benefit of end-users, where relevant, by including an assessment factor that requires we have regard to competition effects, including specific information for sub-categories of capital expenditure that have potential impacts on competition in PQ FFLAS and other telecommunications markets.

7.139 We have adopted this approach because of the limited role of the Chorus capex IM in promoting competition. As noted above in the capex decision-making framework section, we will only evaluate Chorus' capex proposals and determine capex allowances to be used to set allowable revenues. A determination will not commit Chorus to an investment plan (ie, Chorus can invest in what it considers necessary to deliver quality outcomes under the MAR).

Flexibility of approach

- 7.140 Applying the evaluation criteria will also enable us to focus on different aspects of the capex proposal that will be required to assess whether the expenditure objective has been met. For example, some types of capex may require skilled contractor resource whose availability may constrain the deliverability of the project or programme. We would therefore need to scrutinise this aspect of the proposal while it may not be considered for other types of capex.
- 7.141 We have specified the requirements for use of an independent verifier within each capex category. We expect that the independent verifier will consider the expenditure objective and the relevant assessment factors as part of their evaluation when completing their independent verification of a base capex, connection capex baseline, and/or an individual capex proposal. This can be clarified when we agree with Chorus, and the independent verifier, the terms of reference, including the scope of services of the verification.
- 7.142 We agree with Chorus that the evaluation criteria should provide certainty and that the appropriate assessment factors can be applied to the capex proposal. We also agree with 2degrees, Vocus and Vector that in our evaluation of a capex proposal it is important that we test such things as the reasonableness of assumptions, the options considered, and the economic analysis used in developing the proposed forecasts. Accordingly, we expanded the list of assessment factors included within the Chorus capex IM that we will have regard to when evaluating a capex proposal where they are relevant. This expanded list provides more definition around the factors within the IM and provides more clarity and certainty than we included in our draft decision.
- 7.143 As discussed above, we have also clarified the requirement that we must have regard to the assessment factors, where relevant.
- 7.144 This is why we have made it clear in the determination that we must have regard to the assessment factors, to the extent they are relevant. We consider this change reflects our intended approach to applying the assessment factors. It is our view that including a reference to whether a factor is relevant does not change the requirement that we must have regard to all factors. It does, however, clarify for stakeholders that not every factor will be addressed with the same level of scrutiny.

We will assess the level of information and analysis required after having regard to the relevance and weight that is appropriate for the particular factor. During our evaluation, we will identify how we will have regard to the assessment factors in our evaluation.

Consideration of market specific factors

- 7.145 We have also considered how market factors specific to Chorus could impact on the approach taken when applying the evaluation criteria. For example:
- 7.145.1 Chorus' ownership structure, including being listed on the NZX, will ensure a degree of scrutiny on Chorus' capex proposals; and
 - 7.145.2 competition from alternative technologies (eg, mobile) may increase over time and place some competitive pressure on Chorus to be efficient.
- 7.146 We appreciate that Chorus faces different operating conditions from firms operating under the similar Part 4 electricity regulatory regimes (such as Transpower and Powerco). However, on balance, we still consider that Chorus may have an incentive to over-forecast given the available returns from doing so (refer to the context section in this chapter for more discussion on this issue). Therefore, the Chorus capex IM must include processes and rules to scrutinise capex proposals. There also may be potential competition concerns in relation to some types of capex, eg, retention capex, that we need to consider.
- 7.147 Our flexible approach to evaluating capex will allow us to take these incentives and market factors into account.

Consideration of alternative options

- 7.148 We considered alternative evaluation criteria including potential investment tests. We decided that our evaluation approach, along with support from an independent verifier (and other support when and if we deem it necessary), is most consistent with promoting the s 162 purpose and considering s 166(2)(b).
- 7.149 One technique we considered was a net market benefit test, as used to assess major capex projects in Transpower's regulatory regime. While we expect Chorus to undertake economic analysis to justify its capex investments, we expect there will be uncertainty and judgement required in the valuation of costs and benefits that would be required to apply a net market benefit test. At this stage, the Commission would still be required to exercise judgement in determining whether the investment test had been met.
- 7.150 In addition, Transpower uses the concept of the value of lost load (VoLL) to estimate the economic impact of planned and unplanned outages. VoLL is therefore a key

input into the calculation of costs and benefits to end-users of electricity through changes in the levels of reliability provided by the grid. We are unaware of a suitable comparative concept in the telecommunications market and as a result we consider that it would be difficult to consistently quantify a definitive market benefit in the fibre sector. Therefore, we do not consider this approach is yet appropriate to be relied upon in the telecommunications market.

Provision of certainty for stakeholders

- 7.151 We consider our approach provides certainty on how we will assess expenditure, while allowing us to exercise judgement in the level of scrutiny we apply given the varied expenditure types and the complex nature of assessment.
- 7.152 The combination of the definition of the expenditure objective along with the requirement to consider a minimum set of assessment factors provides sufficient information to Chorus, access seekers and end-users as to how we will undertake an evaluation of capex proposals.
- 7.153 There is precedent for using good industry practice in regulation to assess decisions made by regulated companies:
- 7.153.1 It is a common approach used in Part 4 assessments and by regulators in Australia.
 - 7.153.2 CIP used a best practice concept to assess UFB initiative plans from Chorus and the LFCs.
 - 7.153.3 A similar concept was used in the Final Pricing Principle rulings under the Telecommunications Act.

Evaluation criteria applies to all capex proposals

- 7.154 We consider the evaluation criteria are flexible enough to evaluate and approve all types of capex, including base capex, connection capex baseline and individual capex proposals.
- 7.155 We consider that the majority of issues we would encounter when evaluating capex relate to challenges with assessing forecasts and identifying efficient and prudent capex for different types of investments. This could translate into risks that we may approve inflated forecasts that could lead to Chorus extracting monopoly profits or that we do not adequately consider the potential impacts of capex on competition. We conclude that the evaluation criteria and information requirements we have designed can be utilised to mitigate the risks of over-forecasting, over-investment and/or competition impacts.

7.156 We have considered whether our decisions relating to capex evaluation criteria will enable us to assess and approve capex in relation to specific PQ FFLAS issues in a way that is in the long-term benefit of end-users. To this end, we considered a number of specific PQ FFLAS issues that we may encounter when assessing capex.

- 7.156.1 **Competition issues:** including issues that arise from capex investment proposals that may impact on the emergence or development of competition in telecommunications markets (including in markets that use FFLAS as an input to downstream services, eg, mobile, FWA). Similarly, consideration of future legislative requirements around unbundling and deregulation may also give rise to additional scrutiny for competition implications of certain proposed capex.
- 7.156.2 **Other potentially contentious capex:** we have identified other potentially contentious types of capex that may create challenges in assessing against an expenditure objective and require a unique approach.

7.157 We also considered situations where Chorus provides financial incentives to migrate customers to the fibre network. Chorus currently capitalises these incentives. Potential issues with this type of capex include:

- 7.157.1 long ‘clawback’ periods for the incentive payment may disincentivise consumers from switching providers; and/or
 - 7.157.2 short-term lower prices may exclude some access seekers relying on alternative technologies from competing.
- 7.158 We consider that we can assess retention capex through the expenditure objective. We may request targeted information on Chorus’ retention costs to enable us to assess the efficient level of capex. Chorus is also subject to a non-discrimination requirement, EOI and supply obligations under the Fibre Deeds and to the Commerce Act.¹³²⁰
- 7.159 We also considered potential issues with evaluating proposals for layer 2 capex including:
- 7.159.1 over-investment ie, excessive network upgrades to deter competition from access seekers purchasing unbundled fibre services or from alternative technologies; and/or

¹³²⁰ Refer to Chapter 2.

- 7.159.2 decisions relating to the timing of investment in layer 2 to meet end-user demand or to upgrade technology.
- 7.160 We considered we may assess proposals for capex that seek approval for expenditure that is less than we think is the efficient level to promote competition. We consider an issue could arise with types of capex that may be required to enable layer 1 PQ FFLAS that could be underfunded, including system development and changes to frames and space.
- 7.161 Expenditure is likely to be modular and thus incremental, limiting the risk of large unmet investment need. We consider this issue can be addressed through quality regulation to address potential under-investment and information disclosure reporting to make potential areas of concern transparent to stakeholders.
- 7.162 Chorus delivers PQ FFLAS, other FFLAS and non-FFLAS (eg, using its copper network). Capex proposals will include common capex that is associated with PQ FFLAS, other FFLAS and non-FFLAS. This raises a challenge as to how, if at all, we will assess the expenditure that relates to services that are not PQ FFLAS.
- 7.163 In determining the capex allowance, we will only determine capex (directly attributable or shared) relating to PQ FFLAS. Our evaluation, however, would look at expenditure as a whole, not just the PQ FFLAS portion, and assess the application of the cost allocation IM.
- 7.164 Overall, we consider that we can assess PQ FFLAS capex using the evaluation criteria to approve capex that best promotes the purpose of Part 6 (s166(2)). Our approach to setting information requirements for base and individual capex proposals can help us assess this type of capex against the expenditure objective, and the individual capex can help address issues relating to timing uncertainty.
- 7.165 In taking into account potential issues with evaluating different types of capex, we have amended our evaluation criteria by including assessment factors to help assess capex and address issues that are specific to PQ FFLAS. These additions include:
- 7.165.1 the consideration of competition effects, including specific information for categories of capital expenditure that have potential impacts on competition between PQ FFLAS and other telecommunication services;
 - 7.165.2 the impact that the proposed capex has on layer 1 PQ FFLAS; and
 - 7.165.3 the consideration of common costs and benefits between PQ FFLAS, other FFLAS and non-FFLAS.

General rules and process for capital expenditure proposals

7.166 This section describes our final decisions on the Chorus capex IM that affect the general rules and process for capital expenditure proposals. This section covers the following topics in the IM:

- 7.166.1 all proposed capex will be net of capital contributions;
- 7.166.2 general audit and certification requirements;
- 7.166.3 requirement for an Integrated Fibre Plan;
- 7.166.4 publication of confidential information;
- 7.166.5 consultation obligations on the Commission;
- 7.166.6 Chorus led consultation on capex proposals; and
- 7.166.7 consequences if the Commission fails to meet its time frames.

Final decision: all proposed capex will be net of capital contributions

7.167 Our final decision is that all proposed capex and capex allowances approved by the Commission will be net of any capital contributions. This is consistent with the rules contained in the asset valuation IM. Our final decision remains unchanged from the draft decision.

Explanation of all proposed capex being net of capital contributions

- 7.168 Our decision to exclude capital contributions is consistent with the requirement in the asset valuation IM that capital contributions must be deducted from asset values before they enter the RAB (see asset valuation section above). To be consistent with the asset valuation rule, Chorus must provide forecast capex in its capex proposals that are net of all capital contributions.
- 7.169 We have made some minor changes to the drafting of the Chorus capex IM to clarify that all the proposed capex and capex allowances approved by the Commission will be net of any capital contributions. When evaluating a capex proposal, we will seek assurance that this is the case. The audit and certification requirements for capex proposals will also provide some assurance that capital contributions have been appropriately deducted.

Rationale for our final decision: all proposed capex being net of capital contributions

- 7.170 Our decision ensures consistency with the asset valuation IM requirements as described in Chapter 4. It also ensures that capital contributions received by Chorus are not then double counted through being added to their capex proposals. We also

note that, in addition to capital contribution rules, any other IM requirements that could relate to capex forecasts are applicable to capex proposals.

- 7.171 Forecast capex may differ from commissioned capex values that enter the RAB in a subsequent period. However, because the forecast capex allowance will determine the MAR for the upcoming regulatory period, it is important that the forecast capex is consistent with asset valuation rules.
- 7.172 We may require Chorus to provide assurance that it has complied with the capital contributions rule. This could be achieved through requiring Chorus to provide its capital contributions policy and evidence that it has provided forecasts net of capital contributions. Our decisions relating to information requirements for capex proposals will enable us, if we deemed that it was necessary, to collect this information to help evaluate a capex proposal against the capital expenditure objective. We note that our decisions relating to audit requirements for capex proposals will also assist us with this.

Final decision – general audit and certification requirements

- 7.173 Our final decision is to specify general audit and director/CEO certification requirements that apply when Chorus submits a base capex proposal, connection capex baseline proposal, an individual capex proposal, and the connection capex annual report.
- 7.174 In some instances, we have specified additional or amended audit requirements for each capex category. These are covered later in this chapter in each relevant capex category section.

Why audit and certification requirements are specified in the capex IM

- 7.175 The rationale for assurance processes is the same for all capex categories that have the same or similar requirements. The justification for assurance processes of independent verification, certification and audit, is based on the general rationale set out here.
- 7.176 This means that the discussion sections below on the separate categories of capex proposals and their assurance processes focus on the rationale for any assurance requirements specific to those capex categories, rather than repeating the rationale for the general requirements.
- 7.177 Assurance processes allow the Commission and stakeholders to have confidence in the information required to assess a capex proposal provided by Chorus. The assurance methods used for capex proposals are:
 - 7.177.1 **Audits:** Appropriate when assessing whether known systems and processes are sufficiently robust for generating information (including

meeting regulatory and legislative requirements) and information has been correctly extracted and applied. There are different types of audits, including internal audits conducted by the organisation, and independent external audits with different standards of assurance according to the level of assurance required and nature of the information being audited.

- 7.177.2 **Certification:** Appropriate with low materiality processes or when a lower level of assurance is required when compared with other types of assurance ie, external audits. There are different levels of certification, including by senior management, CEO and/or the board of directors. The Chorus capex IM includes certification either by 2 members of the board (for base capex and connection capex baseline proposals and the connection capex annual report) or the CEO (for individual capex proposals).
- 7.177.3 **Independent verification (IV):** Appropriate when a certain level of judgement is required to provide assurance, for example in assessing the reasonableness of assumptions used in the development of expenditure forecasts or whether a capex proposal meets the expenditure objective and reflects good industry practice. We discuss independent verification requirements separately in the base capex, connection capex and individual capex sections in this chapter.

General audit requirements

- 7.178 The table below sets out our final decision for general audit requirements and summarises the key changes from the draft decision.

Table 7.2 Final decision on general audit requirements for capex proposals¹³²¹

Final decision area	Final decision audit requirement: Information used in the capex proposal has been...	Key change from draft decision
Historical financial information	<ul style="list-style-type: none"> • compiled in all material respects in accordance with the input methodologies; • properly extracted from Chorus's financial records sourced from its financial systems; and • audited in accordance with applicable auditing standards issued by the External Reporting Board in accordance with its functions under the Financial Reporting Act 2013 or any equivalent standards that replace these standards. 	<p>Separate audit requirement for historical financial information, with explicit reference to audit standards.</p> <p>Added requirement to audit compliance with IMs.</p>

¹³²¹ Clause 3.7.4(1) in the Chorus capex IM.

Final decision area	Final decision audit requirement: Information used in the capex proposal has been...	Key change from draft decision
Historical non-financial information	<ul style="list-style-type: none"> • compiled in all material respects in accordance with the input methodologies; • properly compiled on the basis of the relevant underlying source information; and • examined in accordance with applicable assurance standards. 	<p>Separate audit requirement for historical non-financial information, with explicit reference to assurance standards.</p> <p>Removal of positive assurance requirement in respect of reasonableness of assumptions.</p> <p>Added requirement to audit compliance with IMs.</p>
Forecast financial information	<ul style="list-style-type: none"> • compiled in all material respects in accordance with the input methodologies; • properly compiled on the basis of disclosed assumptions and relevant underlying source information; and • examined in accordance with applicable assurance standards. 	<p>Separate assurance requirement for forecast financial information, with explicit reference to assurance standards.</p> <p>Removal of positive assurance requirement in respect of reasonableness of assumptions.</p> <p>Added requirement to audit compliance with IMs.</p>
Forecast non-financial information provided	<ul style="list-style-type: none"> • compiled in all material respects in accordance with the input methodologies; • properly compiled on the basis of the disclosed assumptions and the relevant underlying source information; and • examined in accordance with applicable assurance standards. 	<p>Separate assurance requirement for forecast non-financial information, with explicit reference to assurance standards.</p> <p>Removal of positive assurance requirement in respect of reasonableness of assumptions.</p> <p>Added requirement to audit compliance with IMs.</p>

General certification requirements

7.179 The table below sets out our final decision for general certification requirements and summarises the key changes from the draft decision.

Table 7.3 Final decision on general certification requirements for capex proposals¹³²²

Final decision audit requirement	Key change from draft decision
If a director or CEO of Chorus is required to provide certification in relation to a capex proposal or other document, the director or CEO must certify in writing, that having made all reasonable enquiries, it is their belief that: <ul style="list-style-type: none"> • the proposal or document being certified is derived from and accurately represents, in all material respects, the operations of Chorus; and • the capex proposal being certified complies, in all material respects, with the requirements set out in the PQ IMs. 	Removed certification requirement that in the director or CEO's view the information provided is true and correct.
Chorus must notify the Commission where the information in the capex proposal or document being certified has materially changed in the time between Chorus providing a proposal or document and the Commission making the related determination. Chorus will also need to identify and explain the change.	Changed obligation to update the Commission of any material changes to information relied on in the certification from a director or CEO to Chorus.

Submissions received on the audit requirements

7.180 We received a range of submissions on our general audit requirements in response to our draft decision and our changes outlined in our IM further consultation paper.¹³²³ Our final decision is changed from the draft decision and the decision in the further consultation paper.

7.181 In its submission on the IM further consultation paper (23 July 2020), Chorus proposed specific changes to our draft decision audit and assurance requirements.¹³²⁴ Following careful consideration we have adopted a number of Chorus' proposed changes in our final decision.

¹³²² Clause 3.7.3(1) –3.7.3(2) of the Chorus capex IM.

¹³²³ Commerce Commission “Fibre input methodologies Further consultation draft – reasons paper” (23 July 2020)

¹³²⁴ Chorus “Chorus submission on “Fibre input methodologies – further consultation draft reasons paper” (13 August 2020)

7.182 In its submission, Chorus also proposed expanding the audit requirements to include compliance with IMs.¹³²⁵ We have incorporated this requirement in our final decision.

7.183 We discuss the reasons for our decision in paragraphs 7.198 to 7.219.

7.184 We have grouped the submissions on audit requirements into the following themes:

- 7.184.1 the role of formal audit requirements in the capex IM;
- 7.184.2 compliance cost concerns with audit requirements for PQP1; and
- 7.184.3 clarity of audit requirements.

Submissions on the role of formal audit requirements in the IM

7.185 Chorus submitted that there should not be a formal requirement for the audit of capex proposals. Noting that Transpower is only required to provide director certification, and that audits of a capex proposal are not prescribed in the IM. Chorus submitted on our draft decision that:¹³²⁶

while the requirement for director certification is consistent with Transpower, the audit report is an additional requirement. The audit report requirement should be amended and aligned with the requirements that apply to Transpower.

7.186 Chorus also submitted that:¹³²⁷

It's not clear this cost and complexity is offset by any material improvement – director's certification is the 'gold standard' and taken seriously by any business, as evidenced by the steps Transpower takes to support its director certification.

7.187 In response to our changed requirements in the further consultation paper, Chorus submitted that the amended assurance requirements for forecasts are unlikely to add any informational or assurance value to Chorus' proposal, noting: ¹³²⁸

- 7.187.1 the extensive substantive review of Chorus' expenditure plans undertaken by the independent verifier, CutlerMerz; and

¹³²⁵ Chorus "Chorus submission on "Fibre input methodologies – further consultation draft reasons paper" (13 August 2020)

¹³²⁶ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 388

¹³²⁷ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 388

¹³²⁸ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020)

- 7.187.2 the comprehensive internal Chorus programme of technical and business review ‘treeing-up’ to management representations that in turn support director certification of the RP1 Proposal.
- 7.188 Other submitters supported formal audit requirements in the IM. For example, 2degrees submitted that it supports robust Chorus assurance requirements to address the impact of information asymmetry and ensure Chorus data is reliable and does not result in excessive FFLAS returns.¹³²⁹ Vocus submitted that audit and certification requirements for capex proposals will be extremely important for ensuring Chorus’ proposals can be relied on or used as an input into the price quality determinations. Vocus agreed that the external audit of base capex should be mandatory.¹³³⁰

Compliance cost related concerns with the audit requirements

- 7.189 Chorus also raised various concerns with the audit requirements in the draft decision and the further consultation paper impacting the practical delivery time frame of the expenditure proposal for the first regulatory period and on the cost of developing the proposal. For example, Chorus submitted that:
- 7.189.1 the codified audit requirements restrict its ability to design an integrated and efficient approach to assurance to support director certification”;¹³³¹
- 7.189.2 the proposed requirements are likely to leave Chorus with a limited pool of potential assurance providers, resulting in a cumbersome and expensive assurance process:¹³³²

the amended forecast requirements would require an intensive and unanticipated programme of work on Chorus’s part to support Chorus auditor’s (KPMG) assurance. Chorus raised that this would be particularly problematic for Chorus at this late and critical stage in its RP1 Proposal preparation process.¹³³³

Clarity of audit requirements

- 7.190 Chorus raised concern with a range of specific requirements and the clarity of wording of specific clauses, which in turn are likely to relate to Chorus’ submissions raising concern with audit compliance costs.

¹³²⁹ 2degrees, Commerce Commission Fibre Input Methodologies Further Consultation Draft – Reasons Paper & Determination 2020, (13 August 2020)

¹³³⁰ Vocus “Further consultation: Fibre input methodologies determination 2020” (13 August 2020)

¹³³¹ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 388.2

¹³³² Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 388.3

¹³³³ Chorus “Chorus submission on “Fibre input methodologies – further consultation draft reasons paper” (13 August 2020), paragraphs 81-90.

- 7.191 We discuss the specific submissions and steps we have taken to address any areas where we have agreed with the concerns raised by Chorus below, beginning at paragraph 7.209.

Submissions received on certification requirements

- 7.192 Our audit requirements are complemented by certification requirements. All submitters support the inclusion of director or CEO certification in the Chorus capex IM. As outlined above, Chorus would prefer if certification were the only assurance requirement in the IM, leaving audit as a voluntary task to support CEO or director certification.
- 7.193 Aside from supporting the requirement, submissions focused on whether a requirement to certify that “information provided is true and correct” should be included. This requirement was included in our draft decision.

- 7.194 Chorus submitted that:

The Commission provides no rationale for the additional clause and we are concerned it may unintentionally complicate the certification process. Terms carry specific meaning to assurance practitioners based on other assurance standards, so a small change can have implications to assurance procedures, and therefore the additional requirement should be deleted.¹³³⁴

- 7.195 2degrees disagreed with the removal of the ‘true and correct’ certification requirement proposed in our further consultation paper. 2degrees submitted that while it acknowledged the equivalent Part 4 Commerce Act provisions do not have true and correct certification requirements, the Transpower Capex IM requires:¹³³⁵

Where ... a director or chief executive officer of Transpower has made a certification involving a matter of fact in accordance with this Part” and “he or she ...becomes aware that the fact is untrue ... or has significant cause to doubt the accuracy of that fact ... that director or chief executive officer must notify the Commission as soon as reasonably practicable.

- 7.196 2degrees submitted that if the Commission does not include the true and correct provision, it should revert to the Transpower Capex IM requirement.

- 7.197 Vocus submitted that it would not support any further weakening of the proposed requirements and gives as an example that it continues to support that the certification requirements include that the information is true and correct.¹³³⁶

¹³³⁴ Chorus submission on the Commerce Commission’s Draft Determination (30 January 2020), paragraph 391.

¹³³⁵ 2degrees, Commerce Commission Fibre Input Methodologies Further Consultation Draft – Reasons Paper & Determination 2020, (13 August 2020), pages 2-3.

¹³³⁶ Vocus “Further consultation: Fibre input methodologies determination 2020” (13 August 2020)

Reasons for general audit requirements

- 7.198 Section 176 (d)(i) requires, among other things, that the capex IM must include the extent of independent verification and audit, and the extent of consultation and agreement with other parties (including access seekers or end-users). We consider that these requirements apply to all types of capex approvals including base capex, connection capex baseline and individual capex proposals.
- 7.199 It is important that the Commission can rely on information provided by Chorus to assess capex proposals. Audits, certification, consultation and independent verification requirements are methods of providing assurance to the Commission and other stakeholders that a capex proposal contains information that can be relied upon and that can be used to identify potential risks or concerns in relation to particular capex proposals or expenditure sub-categories. Each method provides a different type of assurance and can be used in different situations.
- 7.200 Like the discussion of submissions, we have grouped our reasons into the following themes:
- 7.200.1 the role of formal audit requirements in the capex IM;
 - 7.200.2 compliance cost concerns with audit requirements for PQP1; and
 - 7.200.3 scope clarity of audit requirements.

The role of formal audit requirements in the Chorus capex IM

- 7.201 In line with the draft reasons, we have decided that the Part 6 purpose is best promoted by including formal audit requirements in the IM. The audit requirements will increase the general confidence we can have in information when assessing Chorus capex proposals.¹³³⁷
- 7.202 As discussed at paragraphs 7.185 to 7.188, while Chorus preferred no prescribed audit requirements, other submitters generally supported the inclusion of formal audit requirements in the IM.
- 7.203 In a regulatory context, the outcomes that assurance requirements can contribute to include:
- 7.203.1 mitigating the impact of information asymmetry between the economic regulator and a regulated business;

¹³³⁷ Commerce Commission. Fibre input methodologies – Draft decision paper, (19 November 2019), paragraphs 3.1751 to 3.1754.

- 7.203.2 improving confidence in the accuracy and quality of information that is disclosed to a regulated business' external stakeholders;
 - 7.203.3 mitigating the impact of a lack of information within a business; and
 - 7.203.4 helping to drive business improvements.
- 7.204 Chorus is transitioning to a new regulatory regime under Part 6. This regulatory transition means:
- 7.204.1 a shift from delivering a large network build investment programme to managing a network for the longer term, with a shift to longer term planning and forecasting;
 - 7.204.2 an absence of historical information consistent with ID requirements tailored to the scope of regulation under Part 6; and
 - 7.204.3 a first application of IMs, including a cost allocation IM applied to historical and forecast capex.
- 7.205 For the first regulatory period, our primary concern is information asymmetry. Having an audit report by an independent auditor will increase our confidence in the information we will be assessing.
- Compliance cost concerns with audit requirements for PQP1
- 7.206 Our final decision on general audit requirements provides an appropriate level of assurance while not imposing unnecessary compliance costs. In making this decision we considered whether the relative materiality of the information and potential impact on end-users through higher prices justified the cost to undertake an external audit.
 - 7.207 As discussed at paragraph 7.190, Chorus raised concern with a range of specific requirements and the clarity of wording of specific clauses. These in turn are likely to relate to Chorus' submissions raising concern with audit compliance costs.
 - 7.208 Our final decision draws on requirements used under Part 4, specifically the electricity distribution customised price-quality path (CPP) audit requirements and the Transpower Individual price-quality path (IPP) requirements.^{1338,1339} In its submission on our further consultation paper, Chorus proposed alternative audit and

¹³³⁸ Commerce Commission, Electricity Distribution Services Input Methodologies Determination 2012 (20 May 2020), clause 5.5.3.

¹³³⁹ Commerce Commission, Transpower Individual Price-Quality Path Determination 2020, clause 34.

assurance requirements.¹³⁴⁰ Following careful consideration we have adopted a number of Chorus' proposed changes in our final decision.

Improving the clarity of audit requirements

- 7.209 As discussed at paragraph 7.190, Chorus raised concern with a range of specific requirements and the clarity of wording of specific clauses. The specific phrasing of audit and assurance requirements matters a great deal. Requirements for substantive assurance work should be succinctly described in the determination as small changes can have significant effect on the level of work required.
- 7.210 We have taken a number of steps in relation to Chorus' concerns. We have:
- 7.210.1 grouped the audit requirements into types of information (historical financial, historical non-financial, forecast financial, forecast non-financial); and
 - 7.210.2 ensured the standard of assurance required is appropriate and clear for each type of information.
- 7.211 We have drawn on our experience of the audit requirements, and feedback on those requirements under Part 4 that we consider are appropriate under Part 6.
- 7.212 Our final decision includes a requirement for reporting on compliance with IMs in the scope of the capex IM audit requirements. In the further consultation paper we explained that a key focus for the first regulatory period will be assurance on the first application of IMs. At that time we decided to exclude audit requirements for compliance with IMs (other than the capex IM itself) from the IMs, and instead specify audit requirements for IM compliance as part of PQ and ID regulation.
- 7.213 Chorus proposed to include the requirement that historical and forecast financial and non-financial information is compiled in all material respects in accordance with the IMs.¹³⁴¹ We have accepted Chorus' proposal because it provides certainty now about the standard of assurance that will be applied to all capex proposals.

Type of assurance for forecast information

- 7.214 We consider that a limited assurance standard is appropriate in respect of disclosed assumptions underlying forecast information. This is a change as to the further consultation paper, where the required statement whether forecast information "has been properly compiled on the basis of relevant and reasonable assumptions"

¹³⁴⁰ Chorus "Chorus submission on "Fibre input methodologies – further consultation draft reasons paper" (13 August 2020)

¹³⁴¹ Chorus "Chorus submission on "Fibre input methodologies – further consultation draft reasons paper" (13 August 2020)

has been interpreted as requiring a positive assurance standard regarding the reasonableness of assumptions.

- 7.215 We have confirmed with Chorus that its auditor's key concern with our IMs for further consultation re-position was that it imposed a requirement for a 'positive' assurance sign-off.
- 7.216 Assurance standards generally provide for standards of reasonable assurance and limited assurance. Reasonable assurance is a high, but not absolute, level of assurance.¹³⁴² Reasonable assurance opinions are expressed in the form: "the subject matter information is prepared in all material respects in accordance with the applicable criteria" (also referred to as 'positive assurance').¹³⁴³
- 7.217 Limited assurance provides a lesser level of assurance than reasonable assurance. Limited assurance opinions are usually expressed in the form: "based on the procedures performed and evidence obtained, no matter(s) has come to the attention of the assurance practitioner that causes the assurance practitioner to believe that the subject matter information is not prepared, in all material respects, in accordance with the applicable criteria" (also referred to as 'negative assurance').¹³⁴⁴
- 7.218 Our understanding is that in accordance with generally accepted international practice in respect of forecast financial information, as prescribed by the "International Standard on Assurance Engagements 3400: The Examination of Prospective Financial Information", auditors do not provide reasonable assurance on matters relating to future periods. This is based particularly on whether disclosed assumptions are relevant and reasonable, as anticipated events frequently do not occur as expected and variation could be material.¹³⁴⁵ We understand that the same would also generally apply to opinions on assumptions underlying non-financial forecast information.
- 7.219 We also accept Chorus' submission that there may be some degree of overlap between an independent verifier's interrogation of the reasonableness of assumptions supporting forecast information and an auditor's examination (refer to paragraph 7.187.1 above). Our IV requirements can be expected to mitigate the risk

¹³⁴² XRB: A Guide for Prescribers of Assurance Engagements, page 10-11. At <https://www.xrb.govt.nz/information-hub/publications/>

¹³⁴³ XRB: A Guide for Prescribers of Assurance Engagements. At <https://www.xrb.govt.nz/information-hub/publications/>

¹³⁴⁴ XRB: A Guide for Prescribers of Assurance Engagements. At <https://www.xrb.govt.nz/information-hub/publications/>

¹³⁴⁵ Audit New Zealand, "Independent Auditor's Report" in Aurora Energy Limited, "Customised Price-Quality Path Application", 12 June 2020, pages 286-287.

of not requiring a ‘positive’ assurance sign-off from regulatory period two onwards.¹³⁴⁶

Reasons for certification requirements

- 7.220 Director/CEO certification is a cost-effective way of ensuring a certain level of scrutiny, accuracy and challenge has been applied to the information in a proposal and can be relied upon. The certification requirements are complemented by audit requirements.
- 7.221 Our final decision reflects the certification scope of Transpower’s capex requirements, which is appropriate in the context of Chorus’ capex proposal assurance requirements.
- 7.222 As discussed at paragraphs 7.195 to 7.197, Vocus and 2degrees support that the certification requirements include that the information is true and correct. As discussed at paragraph 7.194, Chorus submitted that the requirement should be deleted.
- 7.223 Our final decision is not to include a requirement for a director or CEO to certify that information presented in a capex proposal, which is based on forecasts, is ‘true and correct’. Requiring certification to a ‘true and correct’ standard may not be appropriate for forecast information, given it is based on assumptions. In relation to historical information, certifying that the information is true and correct may require significant additional assurance activities (and cost) to support this certification.
- 7.224 We consider that our assurance requirements in the Chorus capex IM (audit, certification and independent verification) will provide us an appropriate level of confidence when we evaluate the information in Chorus’ proposal for the purposes of PQ regulation. We note that the certification requirements are consistent with Transpower’s certification requirements under Part 4.
- 7.225 In response to 2degrees’ submission, discussed at paragraph 7.195, the certification requirements in our final decision are that Chorus must notify the Commission as soon as practicable where the information that was the basis of the capex proposal or document being certified has materially changed.

¹³⁴⁶ For PQP1, Chorus proposal is not subject to independent verification. Chorus has engaged an independent expert, CutlerMerz, to review its expenditure proposal. A key difference between Chorus’ independent expert and an independent verifier, is that an independent verifier has a duty of care to the Commission.

- 7.226 The certification requirements in Transpower's capex IM state the circumstances under which a director or CEO of Chorus has to notify the Commission of changes.¹³⁴⁷ We have not adopted the wording in the Transpower IM.
- 7.227 In our view, our final decision on certification requirements would address 2degrees' concerns, and for the avoidance of doubt, would include situations where a director or CEO of Chorus:
- 7.227.1.1 becomes aware that a fact in relation to the certification matter is untrue; or
 - 7.227.1.2 has significant cause to doubt the accuracy of that fact.
- 7.228 We have made a change to the requirement to inform the Commission if certain changes to a certification need to be made.¹³⁴⁸ We have changed the requirement so that the obligation is now on Chorus to notify the Commission if there is a material change to information that was used by a director or CEO when making a certification.
- 7.229 We consider this change necessary to address situations where the original director/s or CEO are unavailable to notify us of any changes. We do not consider that information provided to the Commission would be different as a result of this change.

Final decision – requirement for an Integrated Fibre Plan

- 7.230 The Chorus capex IM requires Chorus to submit an Integrated Fibre Plan at the same time as the base capex and connection capex baseline proposals. Our final decision includes changes from the draft decision to clarify the information requirements within each of the component reports. We have also added greater prescription into the Engagement Plan.

Explanation of the requirement for an Integrated Fibre Plan

- 7.231 The Chorus capex IM requires Chorus to submit an Integrated Fibre Plan when it provides its base capex proposal and connection capex baseline proposal. The Integrated Fibre Plan consists of seven component reports (an overview, a quality report, a governance report, a demand report, an investment report, a delivery report and an engagement plan) that together provide an integrated explanation of Chorus' forecast expenditure for the five regulatory years following the start of the

¹³⁴⁷ Transpower Capital Expenditure Input Methodology Determination 2012 (Consolidated January 2020) subpart 4, clause 9.4.1(2)
https://comcom.govt.nz/_data/assets/pdf_file/0026/88280/Transpower-capital-expenditure-input-methodology-determination-consolidated-29-January-2020.pdf

¹³⁴⁸ Fibre Input Methodologies Determination 2020 (13 October 2020), Clause 3.7.3 (2).

next regulatory period. We have specified the types of information to be incorporated into the component reports of the Integrated Fibre Plan.

- 7.231.1 **Forecast expenditure:** For the first regulatory period, which is three years in duration, this represents the forecast expenditure for the regulatory period plus an additional two years into the second regulatory period.
 - 7.231.2 **Historical data:** The Chorus capex IM requires historical data to be included where relevant.
 - 7.231.3 **Key assumptions:** The reports are required to include the key assumptions relied upon in the forecasts, along with the forecast uncertainties.
 - 7.231.4 **Synergies:** A description of the synergies between projects, programmes, capital expenditure, and operating expenditure trade-offs.
 - 7.231.5 **Activity volumes:** the activity volumes and trends as relevant to each report.
- 7.232 The seven component reports may be provided as separate documents or as a single document if the component reports are clearly identified. For the second regulatory period onwards, the Integrated Fibre Plan will also include key updates and changes from the previous regulatory period.
- 7.233 Following receipt of submissions on the Integrated Fibre Plan we have made several changes to the IM that provide further clarity on the information required as part of each component report and better reflect the policy intent. These changes also provide a higher level of specification on the information content than we included in our draft decision.

Submissions received on the requirement for an Integrated Fibre Plan

- 7.234 Submitters generally supported the inclusion of an Integrated Fibre Plan within the Chorus capex IM. We received submissions from Chorus recommending changes to the specific requirements and from 2degrees seeking increased prescription.
- 7.235 In addition to their support for the Integrated Fibre Plan, Chorus recommended some changes to the specifications to the component reports.¹³⁴⁹ Chorus indicated that the Integrated Fibre Plan report should not be required to be broken into

¹³⁴⁹ Chorus “Submission on Fibre input methodologies: Draft decision” (30 January 2020), paragraphs 340 and 341

separate documents. Chorus also submitted that the investment report should not be arranged by assets:

While it makes sense for some investment areas, it isn't appropriate for all. Asset based categorisation is most applicable to lifecycle investment in physical assets, which is a small part of Chorus' investment compared to Part 4 regulated industries.

We recommend for other classes of investment to arrange by:

activity – Where new assets are created and flow into an asset view in future regulatory periods. For example, network electronics, network expansion and IT, are better broken down by activity (eg connections and extensions); and

outcomes – Where assets are cycled to optimise a set of system outcomes, rather than managed by asset class through a traditional lifecycle approach as is typical in Part 4. For example, network electronics.

- 7.236 In Chorus' submission on our further consultation paper, they made a further recommendation that:

The rule that requires certain IFP reports to detail the assumptions relied on for the forecasts should be limited to key assumptions.¹³⁵⁰

- 7.237 2degrees submitted in response to our draft decision that the Integrated Fibre Plan requirements should follow the Integrated Transmission Plan requirements more closely.¹³⁵¹

Rationale for our final decision: the requirement for an Integrated Fibre Plan

- 7.238 The Integrated Fibre Plan is a collection of reports providing an overview of planned expenditure and describing Chorus' forecast expenditure for the regulatory period. Having an integrated and holistic explanation of Chorus' forecast expenditure will assist us to assess the base capex proposal and the connection capex baseline proposal against the capital expenditure objective and good telecommunication industry practice, and to better assess whether the forecast expenditure is consistent with promoting the outcomes set out in s 162.
- 7.239 Following receipt of submissions on the Integrated Fibre Plan we have made several changes to the IM that provide further clarity on the information required as part of the Integrated Fibre Plan and better reflect the policy intent. These changes also provide a higher level of specification on the information content than we included in our draft decision. These changes include:

¹³⁵⁰ Chorus "Chorus submission on "Fibre input methodologies – further consultation draft reasons paper" (13 August 2020), page 23

¹³⁵¹ 2degrees "Commerce Commission Fibre Input Methodologies Submission" (30 January 2020), page 25

- 7.239.1 Clarification of the time frame and inclusion of historical information in each report.
 - 7.239.2 Clarification of the requirements around the inclusion of key assumptions, synergies, and volume information within the component reports. We have limited the information requirements to “key” assumptions in line with Chorus’ submission on our further consultation paper. We agree that there are many assumptions underlying forecasts and risks, and that it is the significant assumptions that need to be specified.
 - 7.239.3 Re-phrasing the requirements for the investment report to clarify the requirements for information that aligns with the capex categories within the regulatory templates.
 - 7.239.4 Strengthening the requirements associated with the Engagement Plan to detail the previous and planned consultation and engagement with stakeholders.
 - 7.239.5 Including a provision to clarify that the component reports may be presented as one document providing the component reports are clearly identified.
 - 7.239.6 We have separated the information that will contribute to the Integrated Fibre Plan into the component reports in order to support targeted reporting of the most relevant details. We also consider that separation of the reporting into its components will better support management of confidential information.
- 7.240 We considered replicating Transpower’s Integrated Transmission Plan (ITP) as set out in the Transpower capex IM within the Chorus capex IM. However, the requirements we included within the Chorus capex IM are already more prescribed than the requirements for the ITP and they aligned to the telecommunications industry rather than those set out in the Transpower capex IM. Therefore, we did not exactly replicate the Part 4 ITP requirements.

Final decision - Publication of confidential information

- 7.241 Our final decision is to include a provision that will allow us to publish information Chorus may consider confidential, if we consider that Chorus has no right to confidentiality. Our final decision is a change from our draft decision.

Explanation of the requirements on the publication of confidential information

- 7.242 Our draft determination had confidential information requirements in separate provisions and did not clarify that the Commission may publish confidential

information that Chorus identifies as confidential if the Commission considers that Chorus has no right to confidentiality or that publication is in the public interest.

Submissions received on publication of confidential information

- 7.243 In its submission on our draft decision, 2degrees suggested that:¹³⁵²

While Chorus has emphasised elements of its capex proposals would be confidential and has argued a relevant factor is that unlike Transpower it faces competition from access seekers (RSPs), the Transpower Capex IM explicitly addresses confidential information but the Chorus Capex IM does not. The clarification that “For the avoidance of doubt- (a) nothing ... prevents the Commission publishing such information in respect of which it considers Transpower has no right to confidentiality” should be transposed into the Chorus Capex IM.

- 7.244 We agree and have added a requirement that sets out the general rule for information claimed to be confidential and clarifies we will consider whether to publish based on our own view of whether the information is confidential. The general rule is consistent with the obligations that were previously in the sections setting out information requirement for capex categories.

Rationale for our final decision: Publication of confidential information

- 7.245 The new confidentiality provisions are consistent with the approach across Part 4 and the Commission on treatment of confidential information.

Final decision - Consultation obligations on the Commission

- 7.246 Our final decision is to outline mandatory consultation obligations on the Commission for base capex and connection capex baseline proposals and discretionary consultation obligations in relation to individual capex proposals.

- 7.247 Once the Commission receives a base capex and a connection capex baseline proposal from Chorus, the Commission must:

- 7.247.1 if deemed necessary by the Commission, seek the views of any person the Commission considers has expertise on a relevant matter;
- 7.247.2 publish the relevant proposal, taking into account the confidential nature of the information;
- 7.247.3 make and publish a draft determination or determinations; and
- 7.247.4 consult with interested persons.

- 7.248 After the Commission receives an individual capex proposal, it may take any of the actions outlined above.

¹³⁵² 2degrees "Commerce Commission Fibre Input Methodologies Submission" (30 January 2020), page 25

- 7.249 As noted above, Chorus must identify any aspects of a capex proposal that it considers confidential. The Commission will take into account the confidential nature of the information when determining how to publish information as part of the capex proposal

Rationale for our final decision: Consultation obligations on the Commission

- 7.250 Consultation is appropriate to help ensure that the proposal reflects access seeker and end-user service requirements and quality demands. We consider it important that stakeholders have had an opportunity to provide views on decisions that have a material impact on Chorus' capex allowances.
- 7.251 Stakeholders have raised the importance of consultation on capex proposals. We agree with stakeholders that consultation requirements have an important role in ensuring capex proposals are efficient and mitigate against over-forecasting.
- 7.252 The Commission will consult with stakeholders on its decision to set the allowable capex for Chorus for an upcoming regulatory period. Subject to confidentiality restrictions, the Commission will make information on the proposal available to stakeholders and will publish its draft determination and seek submissions.
- 7.253 We outline in the individual capex section why we consider consultation on individual capex proposals should be at the discretion of the Commission. We have outlined in the Chorus capex IM the factors we will take into account in deciding whether to consult.

Final decision – Chorus led consultation on capex proposals

- 7.254 Our final decision is to include a number of requirements in the Chorus capex IM regarding Chorus consultation prior to submitting a capex proposal to us for evaluation.
- 7.255 We consider that these requirements strongly incentivise Chorus to consult on their proposals prior to submission. We therefore do not consider it necessary to explicitly require consultation by Chorus prior to submission of a capex proposal.
- 7.256 Our final decision is the same as the draft decision, but we have strengthened the information requirements on Chorus regarding consultation and stakeholder engagement.

Explanation of Chorus led consultation on capex proposals

- 7.257 We agree with submitters that consultation is important and, as a consequence of its importance, there are several requirements on Chorus to provide us with information on the consultation it has undertaken in the course of developing its capex proposals. These include.

- 7.257.1 An information requirement (and associated assessment factors) on Chorus to show the extent to which it has consulted with its customers and end-users on its base capex and connection capex baseline proposals and how Chorus has reflected any consultation responses in its proposals.
- 7.257.2 A requirement on Chorus to develop and publish an Engagement Plan, as part of the Integrated Fibre Plan, which would outline Chorus' proposed consultation on any aspects of their Integrated Fibre Plan and proposed capex for the regulatory period.
- 7.258 As noted above, we consider that these requirements will strongly incentivise Chorus to consult on their proposals prior to submission. Therefore, we have not included the Chorus capex IM does not explicitly require consultation by Chorus prior to submission of a capex proposal. This is consistent with the approach in the Transpower capex IM for base capex proposals.
- 7.259 When approving an individual capex design proposal, we may approve the proposal, approve the proposal with conditions, or decline the proposal. Part of our evaluation of the design proposal will include having regard to the extent of planned consultation with stakeholders.
- 7.260 When submitting an individual capex proposal, Chorus must provide information on the extent of consultation including how the consultation is incorporated into the forecast expenditure and the impact it has had on the proposal.
- 7.261 After receiving an individual capex proposal, we may consult with interested persons having regard to the size and complexity of the proposed capex, any consultation already undertaken by Chorus and, among other things, the extent to which consultation might assist us in determining the individual capex allowance.
- 7.262 When evaluating a capex proposal, we are required to have regard to the extent and effectiveness of consultation and engagement with stakeholders, and the extent that feedback received has been incorporated into the capex proposal.
- 7.263 In our draft decision, we decided against requiring Chorus to consult on their base capex proposal. While we considered this as a possible option for Chorus, we decided against this requirement for the following reasons.
 - 7.263.1 The Chorus capex IM is primarily focused on matters relating to capex. Effective consultation may need to consider other aspects that affect capex including opex and quality. We consider that consultation obligations on the Commission rather than Chorus are more suitable in the Chorus capex IM because we can consult on these other aspects that affect capex under PQ regulation. Under this

arrangement, stakeholders will still have an opportunity to provide views on Chorus' capex proposal and our determination on the capex allowance.

- 7.263.2 There may be restrictions on consultation due to commercially sensitive information, which may limit the effectiveness of consultation with access seekers and end-users. We believe this will be more likely with Chorus than for Transpower, as some access seekers are also competitors of Chorus.

Submissions received on consultation on capex proposals

- 7.264 2degrees disagreed with our draft decision not to explicitly require Chorus to consult. They state the following.

- 7.264.1 Consultation is always necessary.¹³⁵³
- 7.264.2 We should consult on all areas – not just capex and that our reasons put forward against requiring Chorus to consult was an argument for more consultation and not less.¹³⁵⁴
- 7.264.3 Commercially sensitive information should not be a barrier to consultation. This may impact on the nature and degree of any consultation, and who has access to the commercially sensitive information (the Commission has robust mechanisms in place for authorization of access to commercially sensitive or confidential information), but again is not an argument against requiring any consultation at all.¹³⁵⁵
- 7.265 Submitters cited the Transpower capex IM as a precedent for why consultation should be included as a requirement on Chorus.¹³⁵⁶
- 7.266 Submitter concerns can be summarised as follows – consultation on Chorus' proposal is seen as providing additional scrutiny to Chorus' proposal and a way to meet the Part 6 purpose statements eg find efficiencies, limit excessive profits and ensure Chorus delivers services that customers want.

¹³⁵³ 2degrees "Commerce Commission Fibre Input Methodologies Submission" (30 January 2020)

¹³⁵⁴ 2degrees "Commerce Commission Fibre Input Methodologies Submission" (30 January 2020), page 20

¹³⁵⁵ 2degrees "Commerce Commission Fibre Input Methodologies Submission" (30 January 2020), page 20

¹³⁵⁶ Vocus, "Draft Fibre Input Methodologies Determination - Submission to Commerce Commission" (28 February 2020) paragraph 27(iii)

Rationale for our final decision: Chorus led consultation on capex proposals

- 7.267 Consultation is an important issue raised by multiple stakeholders and we agree with submitters that consultation is an important part of preparing and reviewing capex allowances.
- 7.268 While pre-submission consultation is not an explicit requirement within the Chorus capex IM, we consider consultation is strongly incentivised through the information requirements, Integrated Fibre Plan engagement plan requirements, the individual capex staged process requirements, and the evaluation criteria requirements described above. These mechanisms place strong incentives on Chorus to effectively engage with stakeholders.
- 7.269 We consider that the benefits of a mandatory consultation requirement need to be weighed against the likely value add of consultation prior to Chorus' capex proposal being submitted, the costs associated with mandatory consultation, and Chorus' current approach to consultation.
- 7.270 Mandatory consultation would increase transparency for stakeholders, identify potential issues earlier and may improve stakeholder relationships. It is also likely to increase the regulatory burden on Chorus, may reveal sensitive business plans and may not enable Chorus to tailor its consultation approach to different projects or components of its base capex proposal.
- 7.271 However, we have made several decisions that relate to consultation that would enable us to gather information about the extent of consultation Chorus has undertaken with its customers and stakeholders, and we will take this into account when we make decisions.
- 7.272 Our changes impose less of a regulatory burden on Chorus than mandatory consultation requirements, ensure stakeholder engagement occurs and may enhance stakeholder relationships.

Final decision - Consequences if the Commission fails to meet its time frames

- 7.273 Our final decision if we fail to meet a time frame is to notify Chorus and, where relevant, interested persons, of the new time frame that applies, as soon as practicable after we believe that a time frame is not likely to be met or has not been met. Our final decision is unchanged from the draft decision.

Explanation of the consequences if the Commission fails to meet its time frames

- 7.274 The Chorus capex IM states that if we fail to meet a time frame we will notify Chorus and, where relevant, interested persons, of the new time frame that applies, as soon as practicable after we believe that an applicable time frame is not likely to be met or has not been met.

7.275 None of our functions or decisions described in the IM determination (once made) will be invalidated on account of our failure to meet:

- 7.275.1 time frames applying to the Commission specified in the IM determination; or
- 7.275.2 approval time frames.

7.276 No submissions were received on the consequences if we fail to meet our time frames.

Rationale for our final decision: consequences if the Commission fails to meet its time frames

- 7.277 As per s 176(1)(d)(iii), we are required to consider and describe the consequences if the Commission does not meet its ascribed time frames in the Chorus capex IM. We consider that notifying Chorus and interested persons of the new time frame and being clear that none of our decisions in the determination are invalidated by our failure to meet time frames addresses this requirement.
- 7.278 An alternative approach would be to have a default approval apply, treating the expenditure as approved if the Commission fails to meet the ascribed time frames. However, given the potential nature and size of Chorus' capex proposals, there is a risk that default approvals may not promote the outcomes in s 162.

Base capex

- 7.279 This section sets out and explains processes and rules relating to a base capex proposal. The base capex approval process will result in an approved base capex *ex ante* allowance for the next regulatory period.
- 7.280 The decisions included in this section relate to the:

- 7.280.1 base capex proposal processes and time frames;
- 7.280.2 requirement for geographical information;
- 7.280.3 information requirements;
- 7.280.4 independent verification;
- 7.280.5 specific audit and certification requirements for a base capex proposal; and
- 7.280.6 capex determination and related time frames and process requirements

- 7.281 As noted above, the evaluation criteria based on assessment against the expenditure objective and good telecommunications industry practice will apply to base capex proposals.

Final decision – Base capex proposal processes and time frames

- 7.282 Our final decision is for the base capex proposal to be required 14 months prior to the start of a regulatory period. We will issue an information request and agree regulatory templates with Chorus 22 months prior to a regulatory period. These time frames will apply for Chorus' base capex proposal for the second regulatory period and beyond.
- 7.283 Our final decision includes a change from the draft decision to reflect the time frames for the first regulatory period. Our final decision requires our information request to be issued as soon as practicable and Chorus to submit its base capex proposal for the first regulatory period on or before 31 December 2020.
- 7.284 A base capex proposal must contain:

- 7.284.1 completed regulatory templates;
- 7.284.2 information related to the information request;
- 7.284.3 a full independent verification report; and
- 7.284.4 the required audits and certifications.

Explanation of the base capex proposal processes and time frames

- 7.285 We will issue an information request for a base capex proposal 22 months prior to the start of a regulatory period. This time frame will apply for Chorus' base capex proposal for the second regulatory period and beyond.
- 7.286 For the first regulatory period we will issue an information request as soon as it is practicable to do so.
- 7.287 The information request will be based on the information requirements set out in the Chorus capex IM for a base capex proposal.
- 7.288 We will agree the form and content of regulatory templates with Chorus 22 months prior to the start of a regulatory period or as soon as practicable for the first regulatory period. The regulatory templates must:
- 7.288.1 include a list of base capex sub-categories; and
 - 7.288.2 provide for quantitative information related to the forecast in the base capex proposal.

- 7.289 Our final decision on the time frames for issuing an information request and agreeing regulatory templates for the first regulatory period is a change from our draft proposal. The time frames simply account for the time frames we must operate under for the first regulatory period.
- 7.290 From the second regulatory period, Chorus is required to submit their base capex proposal at least 14 months prior to the start of the regulatory period. For the first regulatory period Chorus is required to submit their base capex proposal by 31 December 2020. Our final decision to require Chorus to submit its base capex proposal for the first regulatory period by 31 December 2020 is a change from our draft proposal. This simply accounts for the time frames we must operate under for the first regulatory period given the date of the determination of the IMs. Submissions received from Chorus generally supported this time frame.

Submissions received on the base capex proposal processes and time frames

- 7.291 Aside from general support for our overall approach we did not receive any specific submissions on the process and time frames for agreeing the regulatory templates.
- 7.292 Chorus submitted that we should consult with them prior to issuing an information request:¹³⁵⁷

We propose the capex IM requires the Commission to seek feedback from Chorus on any draft information notice ahead of each regulatory period, at least two months before the deadline for finalizing the notice. This would enhance predictability and support efficient preparation of the PQ proposal.

- 7.293 Chorus also submitted on setting 31 December 2020 as the proposal deadline for the first regulatory period:¹³⁵⁸

We support:

The Commission's revisions that improve the workability of the capex IM and the 31 December 2020 deadline for our first expenditure proposal. However meeting this date is at risk if the mandatory assessment factors or audit requirements remain as drafted. A one-off RP1 transitional provision, allowing the deadline to be moved if necessary, is needed as a prudent backstop.

and

The 31 December deadline for submission of our RP1 Proposal aligns with our planning and preparation. We have based this planning around a pre-Christmas target date for submission because we recognise the importance of the Commission having sufficient time next year for an effective evaluation and decision-making process.

¹³⁵⁷ Chorus "Submission on Fibre input methodologies: Draft decision"(30 January 2020), paragraph 334

¹³⁵⁸ Chorus "Fibre input methodologies - further consultation draft reasons paper" (13 August 2020)

The major risk items for our planned programme are:

Final assurance and certification work, which cannot be completed until after IMs are finalised; and

Additional information or document creation and/or restructuring being required after the regulatory templates and information requests are confirmed.

Rationale for our final decision: base capex proposal processes and time frames

- 7.294 The Chorus capex IM must include processes and time frames for the submission of base capex proposals, which include the processes around establishing information requirements. Our final decisions on the specificity and the content of the information requirements are described later in this chapter.
- 7.295 In our view, our approach to the process, timing, and setting of the information requirements through issuing an information request and agreeing regulatory templates enables us to set information requirements that are fit for purpose. The information requirements and processes in the capex IM will provide a sufficient level of certainty to Chorus, access seekers and end-users as to the nature of the information we may require.
- 7.296 We do not agree with Chorus that including a requirement to seek feedback on the information request is necessary prior to us issuing it. The information listed within the request will enable our evaluation of their base capex proposal. The time frame (generally 8 months prior to the submission of the proposal) provides Chorus with a degree of certainty as to the information that we seek as part of our evaluation process.
- 7.297 We consider that the time frames for issuing an information request (eight months prior to the base capex proposal submission date from the second regulatory period), provide sufficient time for Chorus to develop its proposal and comply with the information request. For the avoidance of doubt, we do not expect Chorus to have fully developed its expenditure forecasts 22 months prior to the start of the regulatory period. The purpose of the information request is to determine the information requirements that Chorus must comply with when submitting its base capex proposal (and connection capex baseline proposal) 14 months prior to the start of the regulatory period.
- 7.298 We have relied on the regulatory template approach and have not specified expenditure sub-categories in the IM itself as the sector is dynamic, and we see value in agreeing expenditure sub-categories for each relevant regulatory period. The information requirements should be useful to Chorus and reflect their business operations. We therefore think it is important that the expenditure sub-categories and quantitative information is flexible.

- 7.299 It will be a challenge to maintain consistency of capex sub-categories to ensure historic comparisons can be made over time. However, we think this can be managed through agreeing the form and content of the regulatory templates and setting the expectation to Chorus that historic information will be required to make appropriate comparisons between past and forecast expenditure.
- 7.300 The Transpower capex IM contains a mechanism called identified programmes that enables proportionate scrutiny of different types of capex. In the Transpower capex IM, identified programmes are base capex projects and programmes that we agree with Transpower prior to them submitting a base capex proposal. Identified programmes have specific information requirements and evaluation criteria that are different from other capex in the proposal (and typically greater in scope).
- 7.301 We have decided not to introduce an identified programme mechanism into the Chorus capex IM and thus differentiate the information requirements and evaluation criteria for some types of base capex. This ensures that the information requirements will be fit for purpose at the time of the request, rather than locking in information requirements that may become outdated as the industry changes. Instead, we have specified that all capex proposals must meet the expenditure objective.
- 7.302 When we issue information requests for a base capex proposal, we will identify which capex sub-categories will require more or less information to enable application of the expenditure objective. In practice, this may mean that there will be different levels of information required for different capex sub-categories, projects and/or programmes.
- 7.303 We acknowledge Chorus' conditional support on the workability of the 31 December 2020 deadline for the base capex proposal for the first regulatory period. We have considered the potential issues or risk items raised by Chorus and discussed these in the relevant sections of this chapter. Given the time frames required for the first regulatory period, our final decision is to keep the deadline for the base capex proposal at 31 December 2020.
- 7.304 We considered alternative options of providing for a delay to components of the proposal and / or providing for a delay to the whole of the proposal, as a "prudent backstop" as proposed by Chorus. However, as we have considered the specific issues raised by Chorus that contributed to the risk of not meeting the 31 December 2020 deadline, we consider that this time frame should be workable for the first regulatory period. Specifically, we have updated the audit and certification requirements and have clarified the use of assessment factors when evaluating a proposal.

Final decision – Requirement for geographic information

- 7.305 Our final decision is that the Chorus capex IM will require capex information for base capex sub-categories to be specified by one or more geographical locations including urban, rural and any further or other geographical breakdown set out in the regulatory templates.
- 7.306 Chorus will not be required to provide capex information by UFB initiative and non-UFB initiative areas and areas where LFCs other than Chorus have an LFC fibre network. This is a change from our draft decision to reflect the impact of the final Telecommunications (Regulated Fibre Service Providers) Regulations 2019 (the Regulations).

Explanation of the requirement for geographic based information

- 7.307 The Chorus capex IM requires each base capex sub-category identified within the regulatory template as requiring geographic information to be broken down by urban areas, rural areas, and any further or other geographical breakdown set out in the regulatory templates. Our purpose for requiring a geographical breakdown of some forecast capex is to enable our evaluation of capex proposals accounting for the impact that different geographical characteristics may have on our assessment.
- 7.308 The final Regulations mean that Chorus is not subject to PQ regulation in other LFCs' UFB areas. To the extent Chorus is subject to only ID regulation in other LFCs' UFB areas, we do not require capex proposal information relating to those areas. This means the UFB/non-UFB distinction is no longer necessary within the regulatory templates. Updating these provisions is a change from the draft decision.
- 7.309 We do not agree with submissions from 2degrees and Vocus that the Chorus capex IM should require Chorus to break down its capex by individual UFB area, as this may not be appropriate for all base capex sub-categories.
- 7.310 However, the Chorus capex IM allows us to request a further geographical breakdown within the regulatory templates, which may include a breakdown by UFB area where relevant and appropriate.

Submissions received on the requirement for geographic information

- 7.311 We received submissions on the requirement for information to be broken down by geography from Chorus, 2degrees, and Vocus.
- 7.312 Chorus submitted that they should be required to provide information on an all-of-FFLAS basis, with any more granular breakdown agreed through the regulatory template and/or ID processes.¹³⁵⁹

¹³⁵⁹ Chorus "Submission on Fibre input methodologies: Draft decision" (30 January 2020), paragraph 336

7.313 Chorus stated in its submission that the UFB/non-UFB definitions are less relevant after the initial investment has been made and as the network evolves.

7.314 Chorus recommended two options for consideration (preferring the first one listed below):

Require information at an all-of-FFLAS level, with any more granular geographic breakdown agreed through the regulatory template and/or ID processes; or

Allow UFB, rural and LFC definitions to evolve with the network, rather than being tied to UFB agreements. These definitions (which could have different names) would essentially capture areas where there is full Chorus FFLAS coverage, full other LFC FFLAS coverage, and other areas.

7.315 2degrees and Vocus both considered that information should be broken down by UFB area:

We consider that financial information and performance measures, as well as capex proposals, should be required to be disclosed on a geographically disaggregated (UFB area) basis, not a Chorus all-of-FFLAS basis.¹³⁶⁰

Geographic disaggregation: Chorus should be required to breakdown costs and assets by UFB area.¹³⁶¹

Rationale for our final decision: requirement for geographic based information

7.316 The final Regulations mean that Chorus is not subject to PQ regulation in other LFCs' areas. To the extent Chorus is only subject to ID regulation in other LFCs' areas, we do not require capex proposal information relating to those areas. This means the UFB/non-UFB distinction is no longer necessary within the capex IM.

7.317 As noted above our purpose for requiring a geographical breakdown of some forecast capex is to enable our evaluation of capex proposals accounting for the impact that different geographical characteristics may have on our assessment.

7.318 We have the option, as required, to specify further information breakdown via the regulatory templates, and we may still want to collect information on Chorus' cost and other information relating to its operations in LFC areas. We can consider this as part of ID regulation. Further, Chorus' costs in other LFC areas may be shared with its PQ areas. Therefore, for PQ, these shared costs are relevant since their allocation will impact what is viewed as PQ costs.

¹³⁶⁰ 2degrees "Commerce Commission Fibre Input Methodologies Further Consultation Draft – Reasons Paper & Determination 2020" (13 August 2020), page 1

¹³⁶¹ Vocus "Further consultation: Fibre input methodologies determination 2020" (13 August 2020), page 4

- 7.319 We also have extensive information gathering powers under s 15 (s 98 of the Commerce Act) and s 221 of the Telco Act which can be used if required.
- 7.320 Therefore, we consider that the gathering of information on a UFB area breakdown is not precluded by our final decision. Rather our final decision to remove UFB and non-UFB initiative and non-Chorus LFC areas from the specific requirements within the Chorus capex IM is aligned with the final Regulations.

Final decision - information requirements for the base capex information request

- 7.321 Our final decision is to include base capex information requirements within the Chorus capex IM. The IM lists information that we may include in our base capex information request.
- 7.322 We have aligned the information with the assessment factors we must have regard to when evaluating the base capex proposal. We have also amended the drafting of the information requirements to improve clarity. The additional specification of the information is a change from our draft decision.

Explanation of the information requirements for the base capex information request

- 7.323 We must issue an information request for a base capex proposal 22 months prior to the start of a regulatory period (from the second regulatory period). The information request will be based on the information requirements set out in the Chorus capex IM for a base capex proposal.
- 7.324 The Chorus capex IM lists the information areas that we may include within the base capex information request. The information areas are linked to the assessment factors and identify the type of information necessary to assess a base capex proposal against the evaluation criteria. The information includes, among others, such areas as governance relating to the proposed expenditure, historic capex, the relevant financial information, quantitative or economic analysis, consideration of alternatives, competition effects, consultation undertaken and the deliverability of the proposed capex.
- 7.325 Following submissions on our draft decision, our final decision increased the level of specification of the information that we may include in the information request and we have aligned the information with the assessment factors that we must have regard to as part of our evaluation of a base capex proposal.

Submissions received on the information requirements for the base capex information request

- 7.326 We received submissions from 2degrees, Vocus, and Chorus on the information requirements for the base capex proposal.

- 7.327 2degrees submitted that the information requirements should mirror the assessment factors.¹³⁶²
- 7.328 Vocus also submitted on the draft decision supporting increasing the specification of the information to be contained within the information request:¹³⁶³

Our general view is that the minimum information requirements for capex proposals should direct Chorus to provide more information than is currently proposed. For example, while we acknowledge some of the Commission’s “Assessment factors” would be more or less important depending on the nature of any specific capex proposal, we consider they should all be included as part of the minimum information requirements.

- 7.329 Chorus submitted that:¹³⁶⁴

Table 3.16 of the Reasons Paper sets out minimum information requirements for a base capex proposal. We disagree with relevant financial information to include evidence of efficiency improvements in proposed expenditure. We recommend the Commission limit this requirement to key input costs only.

- 7.330 Vocus submitted that the IM should provide Chorus with more direction on the types of evidence they should provide:¹³⁶⁵

The Fibre Capex IM should provide more direction in terms of the type of evidence required to be provided to justify Capex IM proposals: We acknowledge the Commission is reluctant to follow the Part 4 Capex IM precedent and prescribe an Investment Test methodology in the Fibre Capex IM. However, the approach the Commission has taken in the fibre Capex IM has gone much further than simply adopting a principles-based approach rather than a prescriptive IM. As it stands, Vocus considers that Chorus will be provided too much discretion over the evidence to justify any particular capex proposal.

- 7.331 Vocus also submitted:¹³⁶⁶

A principles-based Capex IM would still reasonably be expected to specify Chorus is required to undertake Cost Benefit Analysis, including quantification of the net expected benefits from its capex proposals. We would also expect a principles-based approach to require sensitivity analysis and evidence of consideration and evaluation of alternative options.

¹³⁶² 2degrees “Commerce Commission Fibre Input Methodologies Submission” (30 January 2020), page 3

¹³⁶³ Vocus “Draft Fibre Input Methodologies Determination - Submission to Commerce Commission” (28 February 2020), paragraph 27(ii)

¹³⁶⁴ Chorus “Submission on Fibre input methodologies: Draft decision” (30 January 2020), paragraph 383

¹³⁶⁵ Vocus “Draft Fibre Input Methodologies Determination - Submission to Commerce Commission” (28 February 2020), paragraph 27(ii)

¹³⁶⁶ Vocus “Draft Fibre Input Methodologies Determination - Submission to Commerce Commission” (28 February 2020), paragraph 27(ii)

- 7.332 As discussed above, Chorus also submitted that the IM should require that we seek feedback from Chorus on any information notice.¹³⁶⁷

Rationale for our final decision: information requirements for the base capex information request

- 7.333 The Chorus capex IM needs to include information requirements including the scope and specificity of information required to assess and approve capital expenditure. We considered several alternative options for setting the information requirements in the Chorus capex IM, including:

- 7.333.1 prescribing the information requirements in the Chorus capex IM ie, the approach taken in Transpower’s capex IM, by using identified programmes to specify a higher level of prescription for the information that is to be provided;
- 7.333.2 implementing a principle that Chorus must provide a proposal that justifies their expenditure plans and enables the Commission to assess information; and
- 7.333.3 stating that the Commission may request Chorus to provide all information required by the Commission as part of PQ regulation similar to our approach to opex information requests for an individual price path.

- 7.334 In our view, our approach to setting the information requirements enables us to set information requirements that are fit for purpose rather than locking in information requirements within the Chorus capex IM that may become outdated with the high rate of change within the telecommunication industry. The requirements specified will provide a sufficient level of certainty to Chorus, access seekers and end-users as to the nature of the information we may require. We have incorporated in the Chorus capex IM an expanded list of information requirements. The time frames for the information request and the regulatory templates are sufficient to allow Chorus to provide the information within their base capex proposal.

- 7.335 Issuing an information request helps address the information asymmetries between the Commission and Chorus and facilitates the Commission’s evaluation of capex. The scope and specificity of the information provided by Chorus in response to the information request should reveal Chorus’ approach to forecasting and developing capex proposals and support our evaluation of proposals. We do not agree that the IM should require us to seek feedback from Chorus prior to issuing the request, nor should it limit our ability to seek information required to evaluate Chorus’ capex

¹³⁶⁷ Chorus “Submission on Fibre input methodologies: Draft decision” (30 January 2020), paragraph 334

proposals. For example, limiting financial information to “key input costs only” would not be appropriate.

- 7.336 We agree with 2degrees and Vocus that the information required within the information request should be aligned with the assessment factors that we must have regard to when evaluating a capex proposal. This is reflected in our final decision to align the information requirements, to clarify these requirements and to set them out in more detail.
- 7.337 It should be noted that our general information gathering powers can be used at any time to require Chorus to provide information to support the evaluation of a capex proposal. This could be after a base capex proposal has been submitted and we identify additional information we need to complete our evaluation. We also note that Chorus is also required to provide us with an Integrated Fibre Plan alongside its base capex and connection capex baseline proposals. The specification of the information required to be contained within the Integrated Fibre Plan complements the information areas we will set out in the information request.
- 7.338 We do not agree that the information requirements should be a mandatory minimum list of information. While we expect that there will be similarities between the information requests for any two subsequent regulatory periods, our approach allows us to ensure:
 - 7.338.1 the IM is enduring and we can address changes to information requirements over time;
 - 7.338.2 the information requirements will be fit for purpose at the time of request; and
 - 7.338.3 we limit any undue burden on Chorus for provision of information that is not required at the time.
- 7.339 In our decisions for the connection capex category, we have clarified that the scope of connection capex costs can include non-linear connection costs. Where Chorus proposes to include any non-linear connection costs in the base capex category (for example, where there may not be a suitable non-linear cost function), Chorus must provide information on these costs in the base capex proposal.

Final decision – independent verification

- 7.340 Our final decision is to include the requirement for independent verification of a base capex proposal in conjunction with the audit and certification requirements described previously in this chapter. The requirement for independent verification does not apply to the first regulatory period. This decision has not changed from our draft decision.

Explanation of independent verification

- 7.341 A base capex proposal must be verified by an independent verifier. Chorus must submit a verifier report along with the base capex proposal. The requirement for independent verification does not apply to the first regulatory period.
- 7.342 Chorus must propose an independent verifier who can verify the base capex proposal prior to submission. We must be satisfied with the independence and capability of the proposed independent verifier to undertake the verification of the base capex proposal.
- 7.343 Chorus will submit for our approval the scope of the independent verification report and the terms and conditions of engagement for the independent verifier prior to the start of the verification process.

Submissions received on the use of independent verification

- 7.344 In regard to our decision to not require an independent verifier report for the first period, 2degrees submitted:¹³⁶⁸

If the Commission considers Independent Verification cannot be undertaken for the first regulatory period, we propose at a minimum:

- The Commission should undertake its own review, which it has reserved its right to do: “We reserve the right to seek our own external expert opinion of Chorus’ base capex proposal for the first regulatory period”; and/or
- The Commission could consider a more abbreviated/focussed independent verification eg looking at a sample of Chorus’ cost forecasts; and/or
- The Commission could adopt more permissive re-opener provisions compared to those that apply under Part 4 of the Commerce Act to mitigate against false or misleading information being knowingly provided.

- 7.345 In a similar manner Vocus submitted:¹³⁶⁹

The risk of over-reliance on Chorus to provide information needed to set price and service quality needs to be managed; particularly given the tight time-frame for implementing the new fibre regulatory regime, the planned exclusion of Independent Verification from the first price determination process, and lack of historic Asset Management Plan disclosure.

¹³⁶⁸ 2degrees “Commerce Commission Fibre Input Methodologies Submission” (30 January 2020), page 2

¹³⁶⁹ Vocus “Draft Fibre Input Methodologies Determination Submission to Commerce Commission” (28 February 2020), paragraph 27(iv)

Rationale for our final decision: independent verification

- 7.346 Section 176 (d)(i) requires, among other things, that the Chorus capex IM must include the extent of independent verification and audit, and the extent of consultation and agreement with other parties (including access seekers or end-users). We consider that these requirements apply to all types of capex approvals including base capex, connection capex baseline and individual capex proposals.¹³⁷⁰
- 7.347 We also consider it important that the Commission can rely on information provided. Audits, certification, consultation and independent verification requirements are methods providing assurance to the Commission and other stakeholders that a capex proposal contains information that can be relied upon and that can be used to identify potential risks or concerns in relation to particular capex proposals or expenditure sub-categories. Hence, we agree that independent verification is an important component to the base capex process.
- 7.348 Independent verification is appropriate when a certain level of judgement is required to provide assurance, for example in assessing the reasonableness of assumptions used in the development of expenditure forecasts or whether a capex proposal reflects good industry practice.
- 7.349 Submitters supported the requirement for an independent verifier for the base capex proposal. Our final decision to require Chorus to verify a base capex proposal promotes certainty for Chorus as to how its expenditure will be assessed, as well as assisting us in our evaluation of the base capex proposal. Our evaluation of base capex against the expenditure objective and good telecommunications industry practice will require us to apply a degree of judgement including using knowledge of current industry practice and how such practices can be applied to Chorus' circumstances. Expert opinion, provided by an independent verifier, is of particular value in the assessment of information that is critical to our decision making, including forecasts of capex and demand.
- 7.350 We considered the 2degrees and Vocus submissions that the exclusion of independent verification for the first regulatory period created risks that need to be managed. Our decision to not require independent verification for the first regulatory period is because independent verification is not practical within the time frames we are required to operate within for the first regulatory period. However, we consider the information requirements, our ability to consult on a proposal after receipt, and the ability to engage expert advisors in our assessment of Chorus' base capex proposal will adequately mitigate the risks associated with the proposal not being subject to independent verification for the first regulatory period.

¹³⁷⁰ This section deals primarily with the base capex IV requirements. The IV requirements for baseline connection capex and individual capex are discussed later in this chapter.

Final decision - Specific audit and certification requirements for a base capex proposal

- 7.351 Our final decision is to require base capex proposals to be accompanied by director certification and an audit report.
- 7.352 A base capex proposal will require no fewer than two directors to certify that the information provided as part of the base capex proposal:
 - 7.352.1 is derived from and accurately represents, in all material respects, the operations of Chorus; and
 - 7.352.2 complies, in all material respects, with all of the information requirements for a base capex proposal.
- 7.353 A base capex proposal must include a report by an auditor.

Rationale for our final decision: specific audit and certification requirements for a base capex proposal

- 7.354 We consider that the materiality of the base capex proposal is significant enough to warrant a certification by Chorus' Board of Directors.
- 7.355 Our reasons for requiring an audit report are outlined further in the general requirements section above.

Final decision - Capex determination, related time frames and process requirements

- 7.356 Our final decision is that we must determine a base capex allowance no later than three months prior to the first regulatory period and no later than 6 months for subsequent regulatory periods. The change to require the Commission to determine the base capex allowance three months before the start of the regulatory period, rather than six months, for the first regulatory period is a change from the draft decision.
- 7.357 Our final decision is that the Commission may determine that proposed capex within a base capex proposal must be excluded from the base capex allowance and should be proposed within an individual capex proposal. We must consider a number of relevant factors when exercising discretion in this matter.

Explanation of the capex determination, time frames and process requirements

- 7.358 We will evaluate a base capex proposal and issue a determination that sets a base capex allowance no later than six months prior to the start of a regulatory period.
- 7.359 Because of the time frames for the first regulatory period, for the first regulatory period we will evaluate a base capex proposal and issue a determination that sets a base capex allowance no later than three months prior to the start of the period.

- 7.360 The base capex allowance determination will include an approved base capex allowance for each year of the regulatory period while allowing substitutability between years.
- 7.361 In the process of evaluating a base capex proposal we may consider that a project or programme should be:
- 7.361.1 approved only for the project or programme to which the proposed capex relates; and
 - 7.361.2 reported separately from the base capex to assist the Commission in its evaluation of the capital expenditure.

Submissions received on the capex determination, time frames and process requirements

- 7.362 In response to our draft decision to apply discretion on moving capex from base to individual, Chorus stated that the provision should be used cautiously as individual investments are often part of a larger investment plan. While we have not changed our draft decision in response to Chorus' submission, we acknowledge the need for an efficient process for managing the individual capex application process when the Commission's discretion is exercised.¹³⁷¹

Rationale for our final decision: capex determination, time frames and process requirements

- 7.363 The time frames have been designed to allow sufficient time for us to evaluate, consult and determine a base capex allowance. Evaluating a base capex proposal is a resource intensive exercise. Our decision has sought to find a balance between allowing enough time to evaluate and consult on a base capex proposal while ensuring the time frames are responsive enough to reflect the dynamic nature of PQ FFLAS investment decisions.
- 7.364 We understand that there is a degree of uncertainty and challenge involved with forecasting capex requirements and that this increases the longer the forecast period. We have attempted to address this by:
- 7.364.1 keeping the time frames for evaluating a proposal as short as possible; and
 - 7.364.2 introducing the connection capex and individual capex mechanisms for addressing timing and cost uncertainty.
- 7.365 Our experience with Transpower over three regulatory periods has given us insight into the level of scrutiny and necessary time frames for this type of analysis and decision making. We expect that scrutiny of Chorus' proposal, and associated

¹³⁷¹ Chorus "Submission on Fibre input methodologies: Draft decision" (30 January 2020), paragraph 375

consultation, will likely involve similar time frames even though they operate in different infrastructure sectors.

- 7.366 However, we have reduced the time frames relative to those included in the Transpower capex IM to reflect the different combination of processes and rules, market conditions and incentives faced by Chorus versus Transpower.
- 7.367 We also need to account for the necessary time required to determine the forecast MAR, while providing sufficient time for Chorus between the MAR determination and when prices may need to change to reflect the start of the regulatory period.
- 7.368 The time frames to determine the base capex allowance three months prior to the start of the first regulatory period provide sufficient time for the capex allowance to be included in the MAR determination.
- 7.369 We think it is important that the Commission has discretion to determine that expenditure proposed as base capex is better suited as individual capex. We will make this determination during our evaluation of a base capex proposal.
- 7.370 We consider that Chorus and stakeholders would benefit from having greater clarity and certainty on how we would apply discretion in this matter. Therefore, we have added factors that we will have regard to when making a determination regarding whether capex within a base capex proposal should be excluded from a base capex allowance but could instead be resubmitted as an individual capex proposal. These factors are:
 - 7.370.1 The size and complexity of the expenditure;
 - 7.370.2 The extent of the uncertainty related to the need, the economic case or timing of the proposed capex; and
 - 7.370.3 Whether the capex should be approved for only that project or programme, and should be reported separately to assist the Commission in its evaluation of the capital expenditure.
- 7.371 When considering such an individual capex design proposal and individual capex proposal, we will also account for the development of documentation and certification, where these have been covered as part of base capex requirements.
- 7.372 Our ability to identify capex that should be treated as individual capex also creates an incentive for Chorus to appropriately consider the degree of uncertainty in their base capex forecasts. We expect that the independent verification of the base capex proposal will help us, along with our own assessment, determine where a base capex project or programme would be more suitable as individual capex.

Connection capex

Introduction to connection capex

- 7.373 This section describes the processes and rules that will apply to connection capex. We have defined connection capex as expenditure directly associated with the connection of new end-user premises, buildings or other access points where the communal fibre network already exists or will exist at the time of connection. This includes Chorus UFB initiative brownfield, greenfield and infill connection expenditure, and Chorus-led migrations from copper to PQ FFLAS.
- 7.374 We have split connection capex into two components, a connection capex baseline allowance and a connection capex variable adjustment. The Chorus capex IM requires Chorus to submit a connection capex baseline proposal which we will evaluate alongside our evaluation of the base capex proposal.
- 7.375 A key feature of connection capex is that it is demand driven and therefore contains a relatively high degree of uncertainty relating to the timing of the investment. Our decision accounts for the dynamics and uncertainty in the telecommunications industry.
- 7.376 This section covers the processes and rules relating to a connection capex proposal. The decisions included in this section are:
- 7.376.1 key processes and time frames for connection capex;
 - 7.376.2 scope of connection costs;
 - 7.376.3 connection capex information requirements;
 - 7.376.4 assurance and other requirements; and
 - 7.376.5 connection capex determination and related process requirements.
- 7.377 Our approach to connection capex promotes the purposes of Part 6 because the design of connection capex baseline and variable adjustment processes recognises the uncertainty in the demand for new connections, while accounting for the trade-off between promoting incentives to innovate and invest (per the purpose at s 162(a)), and supporting improving efficiency, and limiting Chorus' ability to earn excessive profits (per the purposes at s 162(b) and (d)).

Final decision – Connection capex key processes and time frames

7.378 Our final decision is for the connection capex baseline proposal to be required at the same time as the base capex proposal.¹³⁷² We will agree regulatory templates with Chorus and issue an information request as soon as it is practicable for the first regulatory period, and for the second regulatory period and subsequent regulatory periods, 22 months prior to a regulatory period. Our final decision has changed from our draft decision to account for the time frames we are working with for this first regulatory period.

7.379 Any proposed connection capex must be additional to the base capex allowance proposed for each regulatory year of the regulatory period.

Explanation of connection capex key processes and time frames

7.380 The key processes and time frames for the connection baseline capex proposal are similar to those for a base capex proposal.

7.381 The Chorus capex IM requires the Commission and Chorus to agree the regulatory templates, including their form and proposed content, 22 months prior to the beginning of a regulatory period. For the first regulatory period regulatory templates will be agreed as soon as practicable. We will also issue a connection capex information request within the same time periods.

7.382 Chorus must submit a connection capex baseline proposal at the same time as it submits a base capex proposal. The connection capex baseline proposal must include:

7.382.1 the connection capex Chorus considers should be included in the connection capex baseline allowance for each regulatory year in the regulatory period;

7.382.2 enough information to enable us to evaluate the connection capex baseline proposal, including:

7.382.2.1 regulatory templates;

7.382.2.2 information required by our information request; and

7.382.2.3 required assurance reports.

Rationale for our final decision: connection capex key processes and time frames

7.383 Our decisions on the key processes and time frames for connection capex have been made to ensure co-ordination with the receipt of information and the evaluation of

¹³⁷² Refer to paragraphs 7.285 to 7.290 in the base capex section.

Chorus' base capex proposal. In this way we can be assured of a holistic approach to the proposals, while also recognising the different characteristics of base and connection capex respectively.

Final decision – Scope of connection capex

7.384 The connection capex baseline proposal must include forecast connection capex for each year of the regulatory period which should be based on:

- 7.384.1 unit rates for connections, by connection type (excluding capital contributions); and
- 7.384.2 forecast connection volumes by connection type.

7.385 The scope of connection capex unit costs must comprise "variable connection costs" and may include "non-linear connection costs".

7.386 Our final decision is to allow for, but not require, non-linear costs to be included within connection capex. In addition, Chorus's capex proposals must separately identify "variable connection costs" and "non-linear connection costs".

Explanation of the scope of connection capex

7.387 As outlined in the capex categorisation section above, the connection capex category is designed to allow the demand-driven component of Chorus' capex allowance to be adjusted for actual fibre uptake or connections during a regulatory period.

7.388 The connection capex mechanism does this by pre-approving connection capex unit costs by connection type. The mechanism then adjusts for the difference between actual connection volumes and forecast connection volumes by connection type. The mechanism does not adjust for differences in actual connection capex unit costs by connection type.

7.389 Connection capex costs consist of two components:

- 7.389.1 variable connection costs; and
- 7.389.2 non-linear connection costs.

7.390 Variable connection costs are those costs for each connection type that are directly driven by the demand for new end-user connections and that are similar for each new end-user connection ie the cost for each connection does not vary with the total number of connections

7.391 Non-linear connection costs are those costs for each connection type that are directly driven by the demand for new end-user connections but where the cost for each connection varies, depending on the total number of end-user connections, in

accordance with a non-linear connection cost function ie the cost per connection can change in a non-linear manner.

- 7.392 Chorus may, within the connection capex baseline proposal, propose which non-linear costs are appropriately included in connection capex and which are better suited to base capex. However, we will approve what costs go in which category and any cost function/variable adjustment for those non-linear costs included in connection capex.
- 7.393 We expect to seek information on any related non-linear connection cost functions as part of our template process or information request prior to Chorus submitting its connection capex baseline proposal (and base capex proposal).
- 7.394 Chorus are also required to report on actual non-linear connection costs by connection type within the connection capex annual report.
- 7.395 Our final decision on the scope of connection capex has incorporated our consideration of Chorus' submissions on the characteristics of connection costs and the inclusion of non-linear costs. Allowing for, but not requiring non-linear connection costs to be included within connection capex is a change from our draft decision.

Submissions received on the scope of connection capex

- 7.396 Chorus submitted, following our November draft decision, that unit costs will not capture the full set of costs that respond to connection volumes and that unit costs are not constant across the full range of connection volumes.¹³⁷³
- 7.397 In our further consultation paper, we proposed expanding the scope of costs included in connection capex to also include non-linear connection costs.¹³⁷⁴ We proposed that all non-linear connection costs should be included in connection capex but also sought feedback on an alternative proposal to allow Chorus to include non-linear connection costs, either in its connection capex baseline proposal (at least in part) or in its base capex proposal.
- 7.398 Chorus submitted it would prefer the connection capex adjustment was applied to the base capex allowance. However, given the Commission had decided to maintain the non-substitutability of base and connection capex, Chorus indicated that it

¹³⁷³ Chorus "Submission on Fibre input methodologies: Draft decision" (30 January 2020), paragraph 361

¹³⁷⁴ Commerce Commission "Fibre input methodologies - Further consultation draft – reasons paper" (23 July 2020)

preferred the Commission’s alternative proposal to permit Chorus flexibility regarding which non-linear costs to include in connection versus base capex.¹³⁷⁵

- 7.399 Chorus also proposed some drafting amendments to the capex IM to reflect the inclusion of a non-linear cost function.¹³⁷⁶

Rationale for our final decision: scope of connection capex

- 7.400 Our final decision to retain a separate connection capex category was discussed earlier previously in this Chapter. We consider that separating the base capex and connection capex categories ensures the retention of incentives for prudent management and efficiency gains within base capex while managing the uncertainty associated with demand-driven capex.
- 7.401 At the same time, we have recognised that not all connection costs vary with each end-user connection and, as a result, unit costs may vary with demand volumes. Therefore, we have allowed for non-linear connection costs to be included in the scope of connection capex.
- 7.402 We consider that by including non-linear costs, connection costs better reflect the nature of the costs associated with connecting end-users to the communal network. This means that capex costs that respond in a non-linear way to connection volumes can be included in connection capex and the connection capex variable adjustment.
- 7.403 Allowing Chorus the flexibility to propose which non-linear connection costs should be included in connection capex should reduce Chorus’ compliance costs, by aligning with Chorus’ cost estimation practices.
- 7.404 However, we have required Chorus to be transparent about non-linear connection costs, and enabled the Commission to approve or determine Chorus’ proposed cost categorisation and any cost function that may affect the variable adjustment to limit the potential for under or over-recovery of non-linear connection costs.
- 7.405 We agree with Chorus that including the non-linear cost function in the Chorus capex IM will mean any changes to the connection capex allowance will more closely reflect actual costs incurred by Chorus.

Final decision – connection capex information requirements

- 7.406 In a similar manner to our final decision on the information requirements for a base capex information request, our final decision is to align the information areas that

¹³⁷⁵ Chorus “Supplementary submission on the Commerce Commission’s fibre input methodologies – further consultation draft reasons paper” (28 August 2020), page 15.

¹³⁷⁶ Chorus “Supplementary submission on the Commerce Commission’s fibre input methodologies – further consultation draft reasons paper” (28 August 2020), page 16.

we may include within our connection capex baseline information request with the assessment factors.

- 7.407 We have also added information requirements for Chorus to specify any variable and non-linear connection costs by connection type and any non-linear connection cost functions. As noted above, this is for transparency, to enable the Commission to determine the appropriate cost categorisation and connection capex unit costs.
- 7.408 Our final decision includes the requirement for Chorus to submit an annual report on the actual unit connection capex costs (including non-linear connection costs) by connection type, actual connection volumes, and updated forecasts for the remainder of the regulatory period.

Explanation of connection capex information requirements

- 7.409 We must issue an information request for a connection capex baseline proposal as soon as practicable for the first regulatory period and at least 22 months prior to the start of a regulatory period for the second and subsequent regulatory periods.
- 7.410 The Chorus capex IM lists the information areas that we may include within the connection capex baseline information request. These areas include, among others, governance relating to the proposed expenditure, historic capex, the relevant financial information, quantitative or economic analysis, consideration of alternatives, competition effects, consultation undertaken and the linkages between the proposed expenditure and quality outcomes.
- 7.411 Our final decision to align the list of information that we may include within the connection capex baseline information request with assessment factors was in response to submissions on the level of prescription within the IM as described in previous sections.
- 7.412 Chorus must also provide a connection capex annual report no later than three months after the end of each regulatory year during a regulatory period. The annual report must include:
 - 7.412.1 annual variable connection costs by connection type and related connection capex unit costs;
 - 7.412.2 actual non-linear connection costs by connection type and the related non-linear connection cost functions and related connection capex unit costs;
 - 7.412.3 actual connection volumes by connection type; and

- 7.412.4 updated forecast connection capex costs and forecast connection volumes by connection type for the remainder of the regulatory period.

Submissions received on connection capex information requirements

- 7.413 In a similar manner to their submission on the base capex information request, Chorus also submitted on the requirement to provide relevant financial information for connection capex:¹³⁷⁷

As for clause 3.6.8(1)(e) in relation to base capex information requirements, a connection capex information request may require “relevant financial information including evidence of efficiency improvements in proposed expenditure.” Similarly as for that clause above, we propose limiting that to information relating to key input costs

- 7.414 We have decided not to limit the information request to information relating to key input costs. We do not consider that limiting the information requests, will aid our evaluation of the connection capex baseline proposal.

Rationale for our final decision: information requirements

- 7.415 In reaching our final decision on the information that may be included within the information request, and annual reporting of connection costs, volumes and forecasts we considered how best to achieve the purposes specified in s 162.
- 7.416 The information requirements set out what is necessary to ensure we can evaluate Chorus’ connection capex baseline proposal to ensure proposed unit costs are efficient, and adjust for actual demand to provide certainty for Chorus and preserve its incentives to invest, as per s 162(a).
- 7.417 We also note that our general information gathering powers can be used at any time to require Chorus to provide information to support the evaluation of a capex proposal.
- 7.418 Chorus are also required to provide us with an Integrated Fibre Plan alongside their base capex proposal and their connection capex baseline proposal. The specification of the information required to be contained within the Integrated Fibre Plan complements the information areas we have set out for the information request.
- 7.419 We are requiring unit costs by connection type to ensure that approved unit rates are reflective of efficient costs. We are requesting annual reports to enable us to monitor changes in volumes and unit costs to inform both the variable connection

¹³⁷⁷ Chorus “Submission on Fibre input methodologies: Draft decision – Appendix C” (30 January 2020), page 27

capex adjustment for the current regulatory period and baseline component approvals for the subsequent regulatory period.

Final decision - Assurance and other requirements

- 7.420 Our final decision is that the connection capex baseline proposal must be accompanied by an independent verification report, certification and an audit report. However, an independent verification report is not required for the first regulatory period. These are the same requirements that apply to the base capex proposal, which is to be submitted at the same time.
- 7.421 The connection capex baseline proposal and the annual report must be accompanied by certification from 2 directors, and an auditor report. This certification requirement for the annual report has changed from our draft decision.

Explanation of connection capex assurance requirements

- 7.422 The connection capex baseline proposal, to be submitted at the same time as the base capex proposal, will have the same audit, verification and certification requirements as base capex.
- 7.423 The connection capex baseline proposal which accompanies the base capex proposal and the connection capex annual report will be certified by two directors of Chorus. In each case, they will certify that.

The information provided as part of the document being certified:

- 7.423.1.1 is derived from and accurately represents, in all material respects, the operations of Chorus; and
- 7.423.1.2 complies, in all material respects, with all of the price-path input methodology requirements for the document being certified.
- 7.424 The information provided in the annual report to the Commission (eg, actual volumes and unit costs) will be audited by an external auditor. The auditor will provide a report covering the general audit requirements set out in the Chorus capex IM, as explained in more detail above.

Rationale for our final decision: connection capex assurance requirements

- 7.425 The rationale for connection capex assurance requirements is the same as for other capex categories.
- 7.426 As with all capex proposals, it is important that the Commission can rely on information provided to assess and approve connection capex. The purpose of the external audit is to provide independent assurance of the numbers used in Chorus' business operations.

- 7.427 We considered whether the relative materiality of the information and potential impact on end-users through higher prices justified the cost to undertake an external audit. Connection capex is likely to be material in the first one to two regulatory periods. We therefore consider an external audit requirement is justified for connection capex baseline proposals and annual reports.
- 7.428 We have decided not to include any independent verification requirements on the connection capex variable adjustment. This is because the level of judgement required to determine the accuracy of the volume data is suitable for an audit and does not pass the threshold for an independent verifier requirement. We therefore consider an external audit is the most appropriate method to provide assurance of this type of information.
- 7.429 We also consider that a director level certification of the connection capex annual report is warranted, in addition to an external audit. We consider that a certification by Directors will provide an incentive for Chorus to implement systems and controls that will ensure the production of accurate and reliable information.

Final decision - Connection capex determination and related process requirements

- 7.430 Our final decision is to issue a determination that sets the connection capex baseline allowance, within the same time frames as we issue the base capex allowance determination. The connection capex variable adjustment will be determined after the receipt of the last connection capex annual report for the regulatory period. The variable adjustment will be based on the difference between actual connection volumes by connection type, and forecast connection volumes by connection type.

Explanation of connection capex determination and related process requirements

- 7.431 Following submission of a connection capex baseline proposal, and our evaluation of the proposal we will issue a determination that sets the connection capex baseline allowance, at the same time as the base capex allowance determination. This will occur no later than three months prior to the start of the first regulatory period, and no later than six months prior to the start of the regulatory period for subsequent regulatory periods.
- 7.432 The determination for the connection capex baseline allowance will include:
 - 7.432.1 The total forecast connection capex allowance to be included in the MAR calculation;
 - 7.432.2 The forecast unit costs, including any non-linear connection costs and related non-linear cost functions, by connection type used to calculate the total connection capex baseline allowance; and

- 7.432.3 The forecast volumes, by connection type, used to calculate the total connection capex baseline allowance.
- 7.433 The connection capex variable adjustment will be determined after the receipt of the last connection capex annual report for the regulatory period, by adjusting for the difference between actual connection volumes by connection type, and forecast connection volumes by connection type, at agreed unit costs, as per the connection capex baseline allowance. The process for any resulting adjustments to the allowable revenues is proposed to be determined as part of the s 170 determination for PQ regulation.

Submissions received on connection capex determination and related process requirements

- 7.434 We received a submission from Chorus that the variable adjustment should be made at the end of each disclosure year.¹³⁷⁸

Rationale for our final decision: connection capex determination and related process requirements

- 7.435 Our final decision on time frames provides sufficient time for the connection capex baseline allowance to be included in the MAR determination.
- 7.436 Our decision is that the Commission will issue a determination that sets the connection capex baseline allowance at the same time as the base capex allowance determination. This will be no later than three months prior to the start of the regulatory period for the first regulatory period and no later than six months prior to the start of the regulatory period for the second and subsequent regulatory period. This decision remains unchanged, however we have changed the time frame for the first regulatory period due to the short time frames we are working to leading up to the implementation date for the new regime.
- 7.437 Chorus is subject to both PQ and ID regulation and it must apply the same cost allocation approach it uses for reporting capital expenditure under ID regulation as the allocation approach that we approve when approving a forecast capex allowance for a price path.^{1379 1380} To support monitoring of this requirement and to promote stakeholder confidence, we will publish in our capex allowance determinations, the asset allocator types, and other relevant information used in calculating the allocated forecast capex allowance.

¹³⁷⁸ Chorus “Submission on Fibre input methodologies: Draft decision – Appendix C” (30 January 2020), page 27

¹³⁷⁹ Refer to cl 2.1.5 (5) of the fibre input methodologies.

¹³⁸⁰ Chorus may deviate from cl 2.1.5(5) if it meets the requirements under 2.1.5(5)(a) – (b)

- 7.438 The variable adjustment will be made at the end of the regulatory period. This is aligned with our decision in the rules and processes IM that the treatment of wash-up amounts will be determined as part of PQ regulation.
- 7.439 We will adjust for actual volumes within a regulatory period but not for actual unit rates. This preserves Chorus' incentives to improve efficiency, as per s 162(b).

Individual capex

- 7.440 This section sets out our final decision and reasons for the processes and rules that apply to individual capex proposals. Our final decision contains changes from our draft decision.
- 7.441 The final decisions included in this section are:
- 7.441.1 definition, key processes and time frames for individual capex proposals;
 - 7.441.2 ring-fencing of individual capex;
 - 7.441.3 information requirements for individual capex;
 - 7.441.4 assurance and other requirements; and
 - 7.441.5 individual capex determination and related processes.
- 7.442 An individual capex proposal must relate to one or more sub-categories of capex in a base capex proposal.¹³⁸¹ The individual capex project mechanism is designed to assess and approve larger projects and programmes, where the uncertainty associated with the expenditure impedes the application of the expenditure evaluation criteria at the time of base capex approval.
- 7.443 The Commission may also determine whether expenditure incorporated within a base capex proposal should be excluded from base capex because of uncertainty when the base capex was proposed or to keep the expenditure separate. Chorus may instead include that expenditure in an individual capex proposal, if the expenditure meets the relevant individual capex criteria.
- 7.444 The processes and rules for individual capex proposals will have the characteristics set out below.

¹³⁸¹ The individual capex category cannot be used to assess and approve connection capex where the communal network exists or will exist at the time of connection. The connection capex category addresses this type of capex.

- 7.444.1 **Minimum threshold:** Individual expenditure is classified as forecast expenditure with a PQ FFLAS capex value equal to or greater than \$5m over the life of the project or programme.
- 7.444.2 **Degree of uncertainty or identified by us that the capex should be ring-fenced:** There must either be a degree of uncertainty such that the need, economic case or timing for the project or programme cannot be defined sufficiently at the time of submitting the base capex proposal; or, as part of our assessment of a base capex proposal we identify that the capex should be ring-fenced and reported on separately.
- 7.444.3 **Staged application process:** The Chorus capex IM specifies a staged application process to allow for the timely approval of expenditure. The first stage is the notification of the project or programme to the Commission, to seek approval of the key parameters, information required, and the assurance that is to be included in the final proposal. The second stage involves the submission of the final individual capex proposal for us to evaluate and, if approved, the determination of an individual capex allowance. The staged application process allows for the specification of contingent conditions regarding the expenditure.
- 7.444.4 **Commensurate review:** The approval of the individual capex proposal will be based on proportionate scrutiny to ensure that the verification, unless waived, will be commensurate with the scale and complexity of the project or programme.
- 7.444.5 **Linked to quality and base capex:** Within the individual capex application the impact on PQ FFLAS quality outcomes, approved base capex, and opex will need to be fully described. Review of these links will be a critical component of our evaluation process. The application for individual capex must be net of (or additional to) any pre-approved base capex or connection capex baseline allowances.
- 7.444.6 **Ring-fenced:** Individual capex allowances for approved projects and programmes will be ring-fenced from, and not substitutable with base capex, connection capex baseline and other individual capex allowances, unless we grant a waiver to the ring-fencing requirement.
- 7.445 Our evaluation of an individual capex proposal will be based on an evaluation against the capital expenditure objective and good telecommunications industry practice, having regard to the relevant assessment factors.

Final decision – definition, key processes, and time frames for individual capex

- 7.446 Our final decision is to define individual capex based on forecast capex of at least \$5m, and where the level of uncertainty is sufficient that it is unreasonable to accurately forecast the capital expenditure at the time the base capex proposal is submitted, or we determine that the capex should be ring-fenced.
- 7.447 Chorus may submit an individual capex design proposal at any time, and we will assess it within a month of receiving the design proposal. Chorus will then submit a final individual capex proposal.
- 7.448 In the same manner that applies to both base capex and connection capex baseline proposals, our final decision is that we must evaluate an individual capex proposal according to the evaluation criteria of the capital expenditure objective and good telecommunication industry practice, having regard to the assessment factors. Our final decision incorporates some drafting changes to clarify the requirements.

Explanation of the definition, key processes and time frames for individual capex

- 7.449 Chorus may apply for additional capex at any time during the regulatory period through the individual capex mechanism. The eligibility criteria for expenditure to be classified as an individual capex project or programme is:
- 7.449.1 The expenditure must be additional to any base capex or connection capex baseline allowance.
 - 7.449.2 The expenditure must relate to one or more base capex sub-categories.
 - 7.449.3 The capital expenditure must be for a project or programme where the forecast capex for PQ FFLAS over the life of the project or programme is at least \$5m.
 - 7.449.4 And where either or both:
 - 7.449.4.1 the need for the expenditure, economic case, and timing for the capex can be established at the time when the individual capex proposal is submitted. The need, economic case or timing uncertainty would have impeded the assessment of the expenditure within the base capex; and
 - 7.449.4.2 we determine that the capex associated with the project or programme should be ring-fenced (approved only for the project or programme and reported separately).

- 7.450 Chorus must notify us of its intention to apply for individual capex by providing an individual capex design proposal. The individual capex design proposal must include the key parameters, the information that will be provided as part of the final proposal, and the assurance process to be undertaken for the individual capex.
- 7.451 We will approve, approve with conditions or decline the individual capex design proposal, including the choice of independent verification provider and scope of independent verification, within one month of receiving the application.
- 7.452 If the design proposal is not approved, Chorus may resubmit a revised application at a later date.
- 7.453 If the design proposal is approved, Chorus will submit a final individual capex proposal based on the agreed key parameters, information requirements and time frames identified in the design proposal.
- 7.454 We will evaluate an individual capex proposal and approve or decline the individual capex allowance, within the time frames agreed at the proposal design phase.
- 7.455 We may consult on the individual capex proposal. Following submissions on our draft decisions, we included within the Chorus capex IM factors we must have regard to in determining whether to consult.
- 7.456 If we determine an allowance, we must also include any reporting requirements or any other conditions we consider necessary.
- 7.457 Following submissions, we clarified the criteria for an individual capex proposal to be based on forecast capex and uncertainty in the economic case for the investment. We have also allowed for the ring-fencing of individual capex to be waived where we consider it is justified.

Submissions received on the key processes and time frames for individual capex

- 7.458 We received submissions on the definition of individual capex. Chorus submitted that the individual capex threshold should be changed to reflect projects/programmes for which forecast (rather than actual) expenditure amounts to at least \$5m.¹³⁸²
- 7.459 We agree with Chorus' submission that the uncertainty criteria for individual capex should refer to the economic case for investment rather than the uncertainty in cost:¹³⁸³

¹³⁸² Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 368

¹³⁸³ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraph 369

We also expect uncertainties associated with individual projects will often be around the assessment framework and the economic case for investment, rather than the forecast cost. As such, the uncertainty criteria should accommodate more than just cost uncertainty.

- 7.460 2degrees and Vocus both considered the Commission should always consult on its draft decision following receipt of an individual capex proposal, rather than using our discretion based on whether consultation is for the long-term benefit of end-users.¹³⁸⁴

- 7.461 Vocus submitted that:¹³⁸⁵

We similarly are unclear why the Commission considers its own capex consultation should be limited to base and connection capex, with consultation on individual capex left discretionary. This is not explained and is inconsistent with Part 4 Capex IM precedent.

- 7.462 We do not consider that a mandatory requirement for us to consult on an individual capex proposal is necessary. There may be instances where the information we receive from Chorus about an individual capex proposal indicates that consultation is either unnecessary or inappropriate. As such we have set out in the capex IM the factors we will take into account in determining whether to consult on an individual capex proposal. We may consider any consultation by Chorus on its individual capex proposal sufficient for our purposes in determining an individual capex allowance (depending on the proposed individual capex in question).

Rationale for our final decision: key processes and time frames for individual capex

- 7.463 The primary focus of the threshold conditions is the assessment of uncertainty inherent in the expenditure. The capital expenditure threshold of \$5m of forecast capex has been set as a materiality threshold to ensure only the larger scale projects or programmes are subject to an individual capex application.
- 7.464 The staged process has been designed to allow for flexibility to ensure the timely approval of the expenditure. Given the potentially diverse nature of individual capex proposals, by both materiality and project type, we see value in including a stage to agree the information required to assess an individual capex proposal.
- 7.465 We have discussed in the base capex section that when assessing the base capex proposal we may also decide that a project or an aspect of a programme should be classed as individual capex.

¹³⁸⁴ 2degrees “Submission on Fibre input methodologies – Draft decision” (30 January 2020), page 23.

¹³⁸⁵ Vocus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraph 27(iii).

7.466 The expenditure requirements for Chorus to meet the demand for services within the industry are likely to change rapidly over time. Therefore, we consider it important to allow for a flexible approval mechanism such as individual capex.

7.467 We considered three options for the individual capex approval.¹³⁸⁶ The options we considered are below.

7.467.1 **Approval in a similar manner as Major Expenditure for Transpower under Part 4:** This option involves the *ex-ante* approval of expenditure following the specification, costing, application of an investment test, and consultation on all major capex projects above \$20m. The time frames involved are typically 12 months or more of analysis and planning prior to application, followed by a significant degree of consultation and review of a proposal. Investment time frames for Transpower are in the order of two to seven or more years, depending on the scale and nature of the investment. This option does not accommodate the rate of technology change within the telecommunications industry and as a result is likely to lead to risks for both end-users and Chorus.

7.467.2 **Approval of bulk funding or an allowance, followed by *ex-post* approval of actual projects:** This option involves the approval of a bulk funding allowance at the time of base capex review and approval, for the purpose of establishing the MAR. Actual projects that fall within a threshold would then be reviewed and approved in an *ex-post* manner. The advantage of this option is that it would enable Chorus to align the timing of the expenditure with the need for the expenditure. However, due to the materiality of the uncertainty associated with this option, the risks to both end-users and Chorus may result in either material under-investment or material over-recovery.

7.467.3 **Staged approval:** This option strikes a balance of provision for *ex-ante* review and approval of expenditure, while providing flexibility to allow for efficiency in the alignment of the expenditure timing with the need for the expenditure. The option mitigates, as much as practical, the risks associated with over-recovery and under-investment.

7.468 There are also options for establishing the threshold or thresholds for the classification of individual capex. These are listed below:

¹³⁸⁶ Like the Connection Capex there are many combinations of options that could be utilised.

- 7.468.1 **Mandatory status of expenditure categorisation:** The two options for the individual capex category are for it to be mandatory for all expenditure that meets the threshold requirements, or to be optional for all expenditure that meets the threshold conditions. Given the uncertain nature of the investment requirements the individual capex category is optional.
- 7.468.2 **The capex threshold:** The options for establishing the capex threshold for individual capex applications range from \$2m to \$20m. The threshold needs to be set within the context of the expenditure requirements within the telecommunications industry, and in combination with other relevant factors such as the purpose of the expenditure categorisation for managing uncertainty. Accordingly, we consider that a lower threshold of \$5m is appropriate.
- 7.468.3 **An uncertainty requirement:** The purpose for establishing an individual capex category is primarily to mitigate the risks associated with the uncertainty of the economic case for, or timing of, large investments. The options for establishing an uncertainty threshold range from establishing a quantified measure though to a judgement-based requirement. Given the range of investments that may be incorporated within the individual capex applications, we consider that it would be difficult to establish a pre-defined quantified measure, and as such a judgement-based uncertainty threshold has been included in the Chorus capex IM.
- 7.468.4 **Determined by us:** We may determine that capex included within a base capex proposal should be ring-fenced and reported separately.
- 7.469 A review of the options against the economic framework, resulted in the selection of the individual capex mechanism as set out in the Chorus capex IM. The selected option appears to best mitigate the risks associated with uncertainty in need, the economic case and timing of larger projects and programmes. It also provides certainty to stakeholders about the approval process and requirements.
- 7.470 Our final decision on individual capex threshold limits includes a change from the draft decision. We decided that the definition of individual capex should be amended so that the individual capex threshold is based on the forecast expenditure rather than actual outturn expenditure, post implementation, of a project or programme, which won't be known at the time a proposal is submitted.
- 7.471 The criteria have been amended to reflect that an individual capex allowance is designed to be *ex-ante* assessment of the expenditure. As such the threshold is

clearly intended to be based on the forecast expenditure associated with an individual project or programme.

- 7.472 We also agree with Chorus' submission that the uncertainty associated with an individual capex at the time of a base capex proposal should refer to the economic case rather than cost. The economic case is broader and as such better reflects the reasons why an investment should not be included within a base capex proposal.
- 7.473 We retain the draft decision that the Commission should have discretion over whether to consult on individual capex proposals but include guidance on how we will apply our discretion.
- 7.474 Our draft decision gave the Commission the ability to decide that aspects of a base capex proposal should be submitted as an individual capex proposal. Chorus was the only submitter to express a view that this should be approached with caution.
- 7.475 Our final decision is to retain our ability to determine that capex should be moved from base to individual capex, but we have clarified when such a decision might be made by including considerations for making the determination including:
 - 7.475.1 uncertainty related to the need, economic case or timing of the expenditure;
 - 7.475.2 whether it should be identified and reported separately from other base capex expenditure; and
 - 7.475.3 the size and complexity of the expenditure.

Final decision – ring-fencing of individual capex

- 7.476 Our final decision is to allow discretion on whether an individual capex should be ring-fenced from other capex. The Chorus capex IM includes a provision by which we can grant a waiver to ring-fencing the capex. Our final decision is a change from the draft decision.

Explanation of the ring-fencing of individual capex

- 7.477 As a component of our evaluation of an individual capex proposal, we may waive the requirement that the individual capex must be restricted to the project or programme to which it relates. We also discussed this in the *substitution of capex between and within capex categories* section above.
- 7.478 In determining whether to waive the ring-fencing requirement we must have regard to the size and complexity of the project or programme and whether the project or programme should be ring-fenced and reported separately. In the instances where

we waive the ring-fencing requirement, such individual capex will be able to be substitutable with base capex.

Submissions received on the ring-fencing of individual capex

- 7.479 We received submissions from Chorus on the ring-fencing of individual capex. It submitted that ring-fencing should be optional rather than mandatory.¹³⁸⁷

Rationale for our final decision: ring-fencing of individual capex

- 7.480 We considered whether we should have the discretion to waive the ring-fencing of an individual capex proposal or to make the ring-fencing requirement mandatory.
- 7.481 We consider that it is essential that individual capex is additional to capex already approved and is not used as a mechanism to dilute efficiency incentives. However, on considering Chorus' submission, we also acknowledge that in some cases an individual capex project or programme may interact with a base or connection capex baseline proposal in such a way that more efficient outcomes would be achieved if it was substitutable. Therefore, we have made provision that will allow us to waive the ring-fencing requirement. However, we have outlined factors we will take into account in exercising this discretion in the Chorus capex IM.

Final decision - information requirements for individual capex proposals

- 7.482 Our final decision is to include individual capex information requirements within the Chorus capex IM. We have specified separate information requirements for the individual capex design proposals which Chorus must provide, and additional information that we may require at either the design proposal or final capex proposal stage. The additional specification of information is a change from our draft decision.

Explanation of the information requirements for individual capex proposals

- 7.483 An individual capex design proposal must be accompanied by information on the key parameters of the proposal. For the purposes of the design proposal, the key parameter information that is required has been set out in the Chorus capex IM.
- 7.484 We have also set out the further information that we may require in relation to final individual capex proposals. These include such things as information on the impact of the proposed project or programme on quality outcomes. In a similar manner to the information requirements for base capex and connection capex baseline proposals, the information that we may require for an individual capex design or final proposal aligns with our evaluation criteria for the proposal.

¹³⁸⁷ Chorus "Submission on Fibre input methodologies: Draft decision" (30 January 2020), paragraph 371

Submissions received on the information requirements for individual capex proposals

- 7.485 We received a submission from 2degrees on the information requirements for individual capex proposals:¹³⁸⁸

The minimum information requirements for individual capex proposals should include a requirement to include: (i) quantified investment test analysis that determines the expenditure is to the long-term benefit of end-users; and (ii) quantified assessment of the proposed investment against reasonable alternatives, including non-capex alternatives *ie* clause 3.6.25(c) should be strengthened.

Rationale for our final decision: information requirements for individual capex proposals

- 7.486 In reaching this decision we have considered how best to achieve the purposes specified in the Act. The requirements set out what information we require to evaluate individual capex proposals. This aligns with our decisions on information requirements for base capex and connection baseline capex proposals, while accounting for the differences in the process of submitting an individual capex design proposal and individual capex proposal. As previously described, we have not specified an investment test for individual capex proposals within the Chorus capex IM. The individual capex category is designed to be flexible enough to account for a range of capex and as such specification of an investment test would not be appropriate. Instead we provided for information which forms the core parts of an investment test to be included in individual capex proposals. This includes information such as the quantitative or economic analysis undertaken to justify the individual capex project or individual capex programme, the impact on quality outcomes, and analysis of alternatives considered.

Final decision – individual capex assurance requirements

- 7.487 Our final decision is to require an individual capex proposal to be accompanied by an audit report and certification from the CEO of Chorus.
- 7.488 We have allowed discretion on the requirement for an individual capex proposal to be independently verified. We will assess Chorus' individual capex design proposal to determine whether to waive the requirement for an independent verification report for a particular proposal. Our discretion to allow for a waiver of the requirement for an independent verification report is a change from our draft decision.

Explanation of the assurance requirements for individual capex proposals

- 7.489 An individual capex proposal must be accompanied by an audit report and certification by the CEO of Chorus. Following submissions on our draft decision we have allowed for a waiver of the requirement for an independent verifier based on specified considerations. If Chorus consider that the proposal does not require

¹³⁸⁸ 2degrees" Commerce Commission Fibre Input Methodologies Submission" (30 January 2020), page 23

independent verification, then Chorus must provide sufficient information and reasons to assist us in deciding if a waiver is justified.

- 7.490 If an independent verification report is required, Chorus must propose an independent verifier who can verify the individual capex proposal, as part of the individual capex design proposal.
- 7.491 We must be satisfied with the independence and capability of the proposed independent verifier to undertake the verification of the individual capex proposal.
- 7.492 We will consider and may approve the proposed scope of the independent verification report and the terms and conditions of engagement for the independent verifier prior to the start of the verification process. The scope of the verification will be proportionate to the materiality and complexity of the individual capex proposal – ie, we can agree a limited scope independent verification for smaller projects and programmes.
- 7.493 A final individual capex project application must be certified by the CEO of Chorus. The CEO must certify that the information provided as part of the individual capex project application:
 - 7.493.1 is derived from and accurately represents, in all material respects, the operations of Chorus; and
 - 7.493.2 complies, in all material respects, with all of the agreed information requirements and key parameters for an individual capex project application.
- 7.494 A final individual capex proposal must include an external auditor report that complies with the general audit requirements and two specific statements from the auditor. The auditor must state:
 - 7.494.1 that the individual capex proposal complies, in all material respects, with the information requirements, key parameters and conditions in the approved individual capex design proposal; and
 - 7.494.2 whether or not the expenditure proposed in the individual capex project application is additional and not a substitute for the determined base capex allowance.

Submissions received on the assurance requirements for individual capex proposals

- 7.495 In addition to submissions we received on the general audit and certification requirements discussed earlier in this Chapter, we received submissions on the requirement for independent verification of individual capex proposals.

7.496 Chorus submit that:¹³⁸⁹

.. we are less confident an independent verifier will add value for all individual capex proposals. The Commission may wish to consider applying the independent verification requirement only to larger individual capex applications – eg for investments greater than \$10m for RP1 – and allow for the scope of verification to be agreed in the first stage decision-making.

7.497 2degrees submitted that independent verification is an important safeguard.¹³⁹⁰

Rationale for our final decision: the assurance requirements for individual capex proposals

7.498 The requirement for independent verification, commensurate with the scale of the expenditure, is considered important for individual capex because:

- 7.498.1 the expenditure is not subject to a pre-defined investment test of the type included in Part 4. As such, an expert independent review will provide assurance that the proposed expenditure is in line with the Chorus capex IM expenditure objective and assessment factors;
- 7.498.2 the proposed expenditure could be technically complex and as such would benefit from an independent external review;
- 7.498.3 the scope and nature of the expenditure is difficult to determine at the time of developing the Chorus capex IM; and
- 7.498.4 it is appropriate to apply proportionate scrutiny to smaller projects where the verifier can play a significant role in providing required assurance and supporting the Commission to ensure the timely approval of the expenditure.

7.499 However, we also consider that discretion over the use of an independent verifier is appropriate given the wide variety of investment types that may be covered by the individual capex mechanism. Restricting the decision to be within our discretion ensures that the right level of governance is maintained and any decision to waive the requirements for an independent verification report is well justified.

7.500 We also consider that allowing for a waiver of the independent verification requirement helps ensure the individual capex mechanism can function as intended. This is because:

¹³⁸⁹ Chorus “Submission on Fibre input methodologies: Draft decision” (30 January 2020), paragraph 393

¹³⁹⁰ 2degrees” Commerce Commission Fibre Input Methodologies Submission” (30 January 2020), page 13

- 7.500.1 requiring an independent verification report in all circumstances potentially imposes a regulatory burden that in some circumstances is unnecessary;
 - 7.500.2 the right level of scrutiny is required. Chorus cannot bypass the independent verification process where it is relevant; and
 - 7.500.3 allowing Commission discretion facilitates the practical application of proportionate scrutiny.
- 7.501 We consider the certification requirements for individual capex should be set to CEO level. This is similar to the major capex projects for Transpower under Part 4. The expenditure is significantly lower than for a base capex proposal and the materiality does not justify Board certification.
- 7.502 Audit requirements for individual capex are the same as the general requirements, but also include the need for a statement from the auditor that the individual capex proposal complies with the approved design proposal and that the expenditure is additional to base capex. There is a potential risk that individual capex proposals include capex that has already been approved as base capex. This could result in end-users effectively paying twice for the same capex.
- 7.503 We consider this requirement will drive appropriate recording and reporting systems that enable an external auditor to be satisfied that capex has not been double counted.

Final decision – Individual capex determination

- 7.504 In the same manner that applies to both base capex and connection capex baseline proposals, our final decision is that we must evaluate an individual capex proposal according to the evaluation criteria of the capital expenditure objective and good telecommunication industry practice, having regard to the assessment factors.

Explanation of the individual capex determination

- 7.505 We will evaluate an individual capex proposal and either determine an individual capex allowance with or without conditions or decline the proposal.
- 7.506 If we determine an allowance, we must also include any reporting requirements or any other conditions we consider necessary. The individual capex project allowance determination must include:
- 7.506.1 the individual capex allowance for that regulatory period and any subsequent regulatory periods;
 - 7.506.2 any reporting requirements; and

7.506.3 any other conditions of the determination.¹³⁹¹

Rationale for our final decision: Individual capex determination

- 7.507 As set out previously in this chapter, we consider an evaluation in accordance with the evaluation criteria enables us to meet the objectives described in s 166(2).
- 7.508 The approved individual capex allowances will be added to Chorus' allowable revenues. The process for washing up and smoothing will be determined at a later date.

¹³⁹¹ Chorus is subject to both PQ and ID regulation and it must apply the same allocator types for reporting capital expenditure under ID regulation as the allocator types that we have used when approving a forecast capex allowance for a price path.

Chapter 8 Final decisions: Tax IM

Table 8.1 Summary of final decisions on tax IM

Issue	Final decision
Tax IM	Tax costs will be calculated using a tax payable approach.
	Our final decision is not to include a specified formula for “regulatory profit/(loss) before tax” for ID purposes at clause 2.3.1(5) in the IM determination. Regulatory profit/(loss) before tax is to be determined in accordance with an ID determination.
	Regulatory tax allowance values are (unless explicitly specified otherwise) determined in accordance with the IMs for each PQ path by applying forecasts in respect of PQ FFLAS for all regulatory years after the base year of: <ul style="list-style-type: none"> 1.61.1 notional deductible interest; 1.61.2 tax deductions for depreciation using tax depreciation rules; and 1.61.3 any other amount determined after applying the tax rules, where: <ul style="list-style-type: none"> 1.61.3.1 any revaluation included in regulatory profit / (loss) before tax; must be ignored; and 1.61.3.2 the effect of any tax losses (other than those incurred in the provision of FFLAS) made by a regulated provider must be ignored.
	When calculating regulatory taxable income, the cost allocation IM and the Income Tax Act 2007 are to be used, to the extent practicable and subject to other relevant provisions in the IMs.
	Debt interest attributed to regulated FFLAS should be calculated using a leverage and cost of debt as determined in the cost of capital IM and the asset valuation IM as appropriate for each component on which debt interest is calculated.
	The tax position of a regulated provider’s wider tax group should be ignored when estimating tax costs. Any tax losses generated by a regulated provider in the supply of regulated FFLAS should be notionally carried forward to the following disclosure year.
	Like the RAB value, the regulatory tax asset value of acquired assets is to remain unchanged in the event of an acquisition of assets used to supply regulated services (ie, from another regulated provider under Part 6 of the Act or from a supplier of services regulated under Part 4).
Setting of the initial tax asset values	The initial regulatory tax asset value of fibre assets is to be set at implementation date (1 January 2022).
	The setting of the regulatory tax asset value at implementation date must have the same level of assurance or audit undertaken as for the setting of the RAB.

How we have structured this chapter

8.2 This chapter discusses the following:

- 8.2.1 General context for the tax IM including:
 - 8.2.1.1 requirements of the Act;
 - 8.2.1.2 our decision-making framework;
 - 8.2.1.3 how our final tax IM decisions fits into the wider development of IMs for regulated FFLAS; and
 - 8.2.1.4 how the tax IM applies to PQ and ID regulation.
- 8.2.2 Our final decisions and reasons for the overall approach to the tax IM, which is primarily affected by the depreciation deduction that is used for regulatory tax purposes.
- 8.2.3 Our final decisions and reasons with regards to the key components of the tax IM including:
 - 8.2.3.1 determination of regulatory profit/(loss) before tax;
 - 8.2.3.2 determination of regulatory tax allowance values for PQ;
 - 8.2.3.3 deductions for regulatory tax purposes;
 - 8.2.3.4 the treatment of the tax position in the wider tax group and tax losses;
 - 8.2.3.5 the tax treatment of acquisitions; and
 - 8.2.3.6 establishing the initial regulatory tax asset value.

Context for the Tax IM

- 8.3 This section discusses the requirements of the Act and the relevant economic principles that will be considered in our discussion of our final decisions on the treatment of tax. It also outlines how our final decisions on the treatment of tax interrelate with other IMs for regulated FFLAS and how we anticipate the IM will be implemented through PQ regulation and ID regulation.
- 8.4 Apart from covering efficient capital and operating expenditure, the building blocks approach is generally intended to reflect the tax costs associated with providing regulated FFLAS. In keeping with the key economic principle of FCM, our approach to tax under the IMs relating to the supply of regulated FFLAS should be consistent with a firm expecting to earn normal returns over the lifetime of their fibre assets. A regulated provider will expect to be able to recover the tax costs that are attributable to the supply of regulated FFLAS.

Requirements of the Act

- 8.5 Section 176(1)(a)(iv) sets out the required content of the IM for the treatment of taxation:
- (1) The input methodologies relating to fibre fixed line access services must include, to the extent applicable to the type of regulation under consideration,—
 - (a) methodologies for evaluating or determining the following matters in respect of the supply of the fibre fixed line access services:
 - (iv) treatment of taxation; ...
- 8.6 The treatment of taxation will affect the way regulated providers subject to ID regulation will provide information. This is because this IM determines the way in which the regulated provider discloses information about their tax costs, which in turn affects their disclosed profitability. For regulated providers subject to PQ regulation, the treatment of taxation will affect the size of the regulatory allowance for tax costs included in the PQ path, and thus the overall return and/or timing of the revenues it is likely to realise.

Decision-making framework

The promotion of the purpose of IMs: and matters to be considered by Commission:

- 8.7 The tax IM is intended to promote certainty for regulated providers, access seekers, and end-users in relation to the way that tax costs are to be treated for ID purposes and for PQ regulation (consistent with s 174). The IM must promote this purpose and best give, or be likely to best give, effect to the objectives described in s 166(2) in light of the purpose of the relevant regulatory instruments. In promoting the purposes in s 166(2), we must make decisions that we consider best give, or are likely to best give, effect:
- 8.7.1 to the purpose in s 162; and
 - 8.7.2 to the extent we consider it relevant, to the promotion of workable competition in telecommunication markets for the long-term benefit of end-users of telecommunications services (s 166(2)(b)).

The promotion of the purpose of Part 6: section 162

- 8.8 We consider that our final decisions for the tax IM are likely to best give effect to the purpose in s 162 as they promote the outcome specified in s 162(d) and are consistent with the outcomes specified in sections 162(a)-(c).
- 8.9 In workably competitive markets, profits after tax would on average be expected to be just sufficient to reward investment, innovation and efficiency. Similarly, apart

from covering capex and opex, efficient regulated providers will generally expect their revenues to cover the tax costs of their business decisions.

- 8.10 We consider that the tax IM final decisions promote s 162(d). This is because our interpretation of ‘profits just sufficient to reward investment, innovation and efficiency’¹³⁹² is profits that provide an expectation of a normal rate of return over time (ie, FCM).¹³⁹³ By enabling regulated providers to have an *ex ante* expectation of a return on capital consistent with the FCM principle, our final decisions assist in ensuring that regulated providers are limited in their ability to extract excessive profits, per s 162(d).
- 8.11 We also consider that the tax IM final decisions in this chapter are relevant to the outcomes in s 162(b)-(c).
 - 8.11.1 Consistent with s 162(b), a focus on incentives to achieve tax efficiencies on their own ought not to outweigh the consideration of incentives to promote improvements in overall economic efficiency. This is because tax liabilities arise from many other business decisions. As such, a move that increases tax costs may be desirable, provided it leads to, or is caused by, a reduction in costs overall. It is difficult to conclude that decisions with very different tax consequences are not equally legitimate. Therefore, we consider that providing for a regulatory allowance for tax costs arising from efficient business conduct promotes (or at least does not discourage) efficiency improvements.
 - 8.11.2 The treatment of taxation can affect incentives to acquire assets, including where acquisitions may in the long-term result in efficiency gains (eg, through economies of scale or other synergies). We consider that the tax treatment of transactions should recognise that, in workably competitive markets, the efficiency gains from those transactions, assuming such gains eventuate, will be shared with end-users over time, consistent with s 162(c).
- 8.12 One way to promote outcomes consistent with s 162(a)-(c) is to allow the net tax benefits (or costs) of a transaction to be enjoyed (or borne) by a regulated provider. These benefits (or costs) will be greater for major asset acquisitions than share purchases.¹³⁹⁴

¹³⁹² This is one of the performance criteria established in the academic literature for evaluating whether a market is workably competitive.

¹³⁹³ For a further discussion of the FCM principle see paragraphs **2.289-2.297** in **Chapter 2**.

¹³⁹⁴ Unlike sales and purchases of shares, sales and purchases of assets will typically result in the purchaser being able to claim depreciation for tax purposes on the assets based on the purchase price, while the

- 8.13 This approach recognises that a regulated provider should retain some benefits of the transaction as a reward for improved efficiency and investment, thereby assisting in promoting efficient investment (consistent with s 162(a) and (b)). It also recognises that regulated providers are better placed than end-users of regulated FFLAS to manage the risks should any tax benefits from the transaction not eventuate as planned. Nonetheless, if there are efficiency gains achieved through the transaction that are not tax-related, then these should be shared with end-users of regulated FFLAS over time.
- 8.14 Thus, the tax effects (ie, by changing depreciation claimable and depreciation recovery assessable) of such a sale and purchase between regulated providers should not be passed through to end-users. Instead it should be enjoyed or borne by the regulated providers concerned.

The promotion of workable competition in telecommunications markets: section 166(2)(b)

- 8.15 In developing our final tax IM we considered whether the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services is relevant, as required under s 166(2)(b). As a result of applying our ‘competition screening’ approach, we have not identified any reasons why the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services has implications for our final decisions for the tax IM that would require us to take a different approach from the one which promotes s 162(a)-(d).

Relevant economic principles

- 8.16 One of the key economic principles to consider when discussing the treatment of tax is the concept of FCM as some tax approaches may not be NPV-neutral, and therefore not consistent with an *ex-ante* expectation of FCM. Relying on the principle of FCM provides regulated providers with an *ex-ante* expectation of a normal rate of return over time consistent with s 162(a) and (d).
- 8.17 In reaching our final decisions on the treatment of net tax benefits (or costs) arising from transactions, we also considered the allocation of risk principle.

How this decision fits into the wider context of setting IMs for regulated FFLAS

- 8.18 When setting the tax IM, we must consider the overlap this IM has with other IMs, particularly:
 - 8.18.1 cost of capital; and

seller may be subject to claw-back of depreciation where the proceeds exceed the depreciated tax asset value.

- 8.18.2 asset valuation.
- 8.19 Our analysis includes consideration of the impact of decisions relating to cost of capital and asset valuation on our tax IM.
- 8.20 We note that the tax IM will also impact on the determination of the initial value of the financial loss asset. Our tax methodology used to determine the initial value of the financial loss asset will be specified as part of a separate decision paper to be published in November 2020.

How the tax IM applies to PQ and ID regulation

- 8.21 This section outlines the way in which the tax IM is to apply to:
- 8.21.1 ID regulation; and
 - 8.21.2 PQ regulation.

Application under ID regulation

- 8.22 We are required to make a determination specifying how ID regulation applies to regulated providers (s 170(1)(a)). The purpose of ID regulation is to ensure that sufficient information is readily available to interested persons to assess whether the Part 6 purpose is being met (s 186).
- 8.23 We currently expect that under ID regulation, a tax IM would apply to the way in which profitability, in terms of net profit after tax and return on investment, is reported.
- 8.24 We consider that interested persons would require information on returns to assess whether the purpose of Part 6 is being met. In particular, requiring regulated providers to disclose returns would allow a comparison to any regulatory WACCs that we determine under Part 6, which would allow interested persons to assess whether regulated providers are limited in their ability to earn excessive profits (s 162(d)). We therefore expect such a requirement to be a key part of satisfying the purpose of ID regulation under s 186.
- 8.25 In implementing our final decision, we expect that regulated providers will need to provide sufficient information in their ID disclosures on the assumptions which underpin the tax calculation. The tax IM is therefore likely to be a key input into the calculation of net profit after tax and any return measure under ID.

Application under PQ regulation

- 8.26 The tax IM will also apply to PQ regulation. For those regulated providers subject to this type of regulation, the tax IM is likely to have a bearing on the level of revenue that they can expect to earn under the PQ path.

- 8.27 For regulated providers subject to PQ regulation underpinned by a BBM approach, tax would be one of the main building blocks in calculating the MAR. Each PQ path will therefore need to be informed by projections of the regulatory tax allowance over the regulatory period, estimated in accordance with the tax IM.

Final Decision: taxation methodology

- 8.28 Our final decision is to use a tax cost approach that provides us and other interested persons with the ability to track changes in tax costs over time.
- 8.29 Our final decision is to use the tax payable approach as it is consistent with FCM. All other things being equal, it is desirable for the tax costs disclosed by a regulated provider in each disclosure year to be more (rather than less) reflective of the tax obligations matching the costs and revenues attributable to that period, and for the tax cost to reflect the cash tax costs imposed by the Inland Revenue Department (IRD) for the period.
- 8.30 We prefer this methodology given its relative simplicity, and its greater transparency under ID regulation.

Rationale for final decision

- 8.31 Tax costs are a key part of any assessment of a regulated provider's profitability. Where a regulated provider is subject to PQ regulation, we consider that compensation for these costs must also be provided when PQ paths are set.
- 8.32 A tax IM is intended to promote certainty for regulated providers, access seekers, and end-users in relation to the way that tax costs are to be treated for ID purposes and for PQ regulation (s 174).
- 8.33 All regulated providers are subject to ID regulation under Part 6. For regulated providers subject to PQ regulation, our final decision is for PQ regulation to leverage off ID. To be effective, ID regulation should retain consistency with PQ path decisions we make in respect of regulated providers subject to PQ regulation, and should be representative of the pricing decisions made by those regulated providers who are not.¹³⁹⁵ By having the tax IM leverage off existing GAAP and IRD rules to a large extent means more unusual events can be readily dealt with, as rules dealing with those circumstances will already exist.

¹³⁹⁵ The tax payable approach is consistent with a relatively flat pricing profile in real terms over time when implemented alongside CPI-indexed straight-line depreciation of the RAB value (i.e. in line with the Commission's decision for the asset valuation roll forward approach to apply to depreciable fibre assets).

- 8.34 Although we are likely to employ a simpler approach for PQ regulation (eg, using an aggregate RAB to set revenues), for ID regulation we currently expect to require regulated providers to maintain detailed asset register records, for both regulatory asset and regulatory tax asset purposes. This means that subsequent PQ path resets start off with a more accurate base of information, reflecting the actual outcomes that have occurred during the preceding regulatory period.¹³⁹⁶
- 8.35 There are two main approaches to establishing tax costs which could be used to estimate the tax costs facing each regulated provider under Part 6, the tax payable approach and the modified deferred tax approach. Both these approaches have previously been used for our IMs under Part 4.
- 8.36 We consider the smoothing effect of the modified deferred tax approach is not needed because there are already other smoothing mechanisms available. Tax smoothing may smooth in the wrong direction and the tax smoothing mechanism involves complexity that is not justified in this context.
- 8.37 A third option is to calculate revenues for PQ paths on a pre-tax basis such that no tax cost needs to be determined. This approach was used during the FPP for UBA and UCLL services and was discussed in our draft decisions paper.¹³⁹⁷ We consider, however, that using an approach that sets an explicit tax cost would be more transparent under ID, as interested persons would be able to make comparisons of post-tax returns between regulated providers, and notional tax costs attributable to the regulated part of the business will be disclosed transparently.
- 8.38 As discussed in paragraph 8.62 below, stakeholders generally supported our use of the tax payable approach and no stakeholders indicated a preference for using a pre-tax methodology.
- 8.39 Determining the actual tax costs (either the actual tax payable or income tax expense) associated with the supply of a regulated service is not always straight forward. For instance, Chorus's business includes a combined copper, regulated FFLAS, and other related services business.¹³⁹⁸ This is expected to make the appropriate estimation of tax to be attributed to regulated FFLAS problematic. For

¹³⁹⁶ We understand that regulated providers are required to maintain detailed tax asset information for statutory purposes. Our experience in implementing Part 4 regulation is that such information will generally be sufficient to allow relevant calculations for regulatory tax purposes. As noted in the Asset Valuation chapter. However, we have set minimum requirements for granularity for regulatory asset valuation (asset specificity requirements) to meet current and anticipated regulatory needs. For example, regulated providers will need to distinguish between asset costs for layer 1 and layer 2 assets, as well as for assets in different asset classes and geographic locations. Regulated providers will need to ensure that tax-related records can support these granularity requirements (if they do not already).

¹³⁹⁷ Commerce Commission "Fibre input methodologies – Draft decision paper"(19 November 2019), paragraphs 3.1923-3.1925.

¹³⁹⁸ Other related services include backhaul and co-location.

other LFCs, the use of tax paid may be complicated by ownership structures including the inherent tax implications of any changes to ownership.

- 8.40 Tax is paid to the IRD on a whole of business basis, and therefore the tax costs associated with the supply of a particular type of regulated service for an integrated business, like Chorus, cannot be determined directly.
- 8.41 Whole of business tax costs could be attributed to the supply of regulated FFLAS in the same manner as other operating costs (ie, by applying the cost allocation IM to the tax costs of the regulated provider as a whole). However, tax costs arise because of many other operational and capital decisions made by regulated providers which may have varying tax effects. Applying a tax cost allocation methodology would therefore be likely to result in an allocation of tax costs that is inconsistent with the other costs allocated to regulated FFLAS.
- 8.42 We consider that tax costs associated with the supply of regulated FFLAS must consequently be calculated by applying the corporate tax rate to regulatory taxable income. Regulatory taxable income is the amount determined after applying the tax rules, excluding the tax rules that apply to the effect of any tax losses, to regulatory profit / (loss) before tax associated with the provision of regulated FFLAS. Expenses are allocated to regulated FFLAS by applying the cost allocation IM but adjusting for any revenue or expenses not recognised as assessable or deductible under tax legislation (eg, revaluation gains or losses) and for timing differences (where expenditure or income is recognised under tax rules¹³⁹⁹ in a different period than under regulatory rules).

General tax approach considerations

- 8.43 Regulated providers will generally expect their revenues to cover the tax costs that arise because of their business decisions, consistent with FCM.
- 8.44 In setting initial tax asset values at the outset of the regime, we need to be careful to avoid creating any windfall gains or losses for regulated providers. This is because the tax asset values at implementation date will diverge from the regulatory asset values due to differences in the depreciation that has been applied. This is particularly significant for short lived assets (eg, layer 2) which will be subject to higher diminishing value rates under tax rules.
- 8.45 The treatment of taxation can affect incentives to acquire assets, including where acquisitions may in the long-term result in efficiency gains (eg, through economies of scale or other synergies). We consider that the tax treatment of transactions should

¹³⁹⁹ In this chapter, tax rules means the rules applicable to a regulated provider for determining income tax payable in the Income Tax Act 2007 (as amended from time to time, and any equivalent preceding legislation, or any subsequent legislation that supplements or replaces that Act).

recognise that, in workably competitive markets, the efficiency gains from those transactions, assuming such gains eventuate, will be shared with end-users over time, consistent with s 162(c).

Interdependencies with other IMs when estimating tax costs

- 8.46 The treatment of interest for tax purposes is dependent on the general WACC methodology and parameters that we have specified in the cost of capital IM. There is also an interdependency between the tax IM and the type of return regulated providers will be required to report under ID.
- 8.47 The cost of capital IM also contains leverage assumptions that may be used in any tax calculation as the proxy for interest paid for tax purposes, and the cost of debt as the average deductible interest rate paid.
- 8.48 Finally, there is a link between the tax calculation and asset valuation IM, in that our final decision to index the RAB will impact the formula used in the tax calculation. When the RAB is indexed, we need to make an adjustment for the tax effect of revaluations because tax rules do not allow for asset revaluations. The consequence of this is typically that the amount of capital returned to businesses through regulatory depreciation in the presence of revaluations over the lifetime of the asset will exceed the cumulative value of tax depreciation deductions recognised by the IRD during that time.

Formula for estimating tax costs

- 8.49 The generic expression for estimating tax costs under ID is:

$$\begin{aligned}
 & \text{Total regulatory income} \\
 & - \text{Depreciation deduction for regulatory tax purposes} \\
 & - \text{Other deductions and adjustments for regulatory tax purposes (eg, deductible operating expenditure, interest)} \\
 & = \text{Regulatory taxable income} \\
 & \text{Regulatory taxable income} \times \text{Corporate tax rate} \\
 & = \text{Regulatory tax cost}
 \end{aligned}$$

- 8.50 We intend to consult with interested persons on our generic expression for estimating tax costs as part of our draft determination under s 170 specifying how ID regulation applies to regulated providers from the start of the first regulatory period. This expression may require more detail and potential adjustments such as the deduction of regulatory income not assessable for tax purposes and pass-through costs.

- 8.51 There are two main approaches that could be used to estimate the tax costs facing each regulated provider. Although the generic formula is very similar in each case, the individual terms differ, particularly the depreciation deduction for tax purposes.
- 8.51.1 The ‘tax payable’ approach relies on regulatory tax depreciation. This form of depreciation is conceptually similar to the allowable deduction for depreciation used in calculating the tax payable to the IRD but rather than using the tax asset value, depreciation is calculated by applying tax rules to the regulatory tax asset value.
 - 8.51.2 The ‘deferred tax’ approach is a variant of the ‘tax expense’ approach and relies on regulatory depreciation (ie, depreciation of the RAB consistent with the rules set by the asset valuation IM). This approach would be implemented with a deferred tax balance adjustment to the RAB value before the return on capital is determined (ie, the ‘modified deferred tax’ approach used for the IMs applying to electricity distribution services and gas distribution services under Part 4) where the deferred tax balance reflects the cumulative difference between the annual tax payable and tax expense amounts.
- 8.52 There are a number of ways in which these high-level approaches can be implemented in practice. The differences between the two approaches is discussed in detail in our draft decisions paper.¹⁴⁰⁰
- 8.53 After comparing the two main approaches, we consider that the tax payable approach comes closest to approximating the cash flows regulated providers would need to meet their tax obligations to the IRD for any given year.
- 8.54 The tax payable approach is consistent with FCM, and therefore gives effect to the purpose in s 162, by allowing regulated providers to have the *ex-ante* expectation of earning a normal return, while also being limited in their ability to extract excessive profits. In addition:
- 8.54.1 the approach is relatively simple to understand and implement;
 - 8.54.2 it would ensure that interested persons are able to assess whether regulated providers are receiving appropriate compensation for their tax costs in each year (ie, consistent with the purpose of ID regulation under s 186);
 - 8.54.3 as discussed below at paragraphs 8.111–8.120 below, it can be implemented in a way that regulated providers retain the net tax benefits

¹⁴⁰⁰ Commerce Commission “Fibre input methodologies – Draft decision paper” (19 November 2019), paragraphs 3.1904 -3.1911.

(or costs) of any transaction, thereby promoting incentives for efficiency-enhancing trades, while protecting end-users from the downside of transactions that do not achieve the expected gains and insulating end-users from the outcome of the IRD revisiting the tax consequences of a transaction; and

- 8.54.4 the smoothing effect of the modified deferred tax approach is not needed because, as observed by Incenta, there are already other smoothing mechanisms available, tax smoothing may smooth in the wrong direction and the tax smoothing mechanism involves complexity that is not justified in this context.¹⁴⁰¹

Regulatory depreciation vs tax depreciation

- 8.55 As noted above, one difference between the two tax methodologies is the use of regulatory depreciation or tax depreciation. The key features of these two types of depreciation are outlined below.
 - 8.55.1 Regulatory depreciation is the building block that provides a business with a return of the efficient level of capital used to supply regulated FFLAS.
 - 8.55.2 Tax depreciation is calculated on the value of the tax asset using tax rules. In calculating taxable income, the business is allowed a deduction for tax depreciation.
- 8.56 Under New Zealand tax rules, the level of tax depreciation for an asset is unlikely to be the same as the level of regulatory depreciation for that asset in a particular year. The most obvious reason for the disparity is the difference between the methods of depreciation that are used, and the different asset lives for tax purposes. The IRD allows both straight-line and diminishing value depreciation, but for cash flow reasons diminishing value is commonly adopted by businesses.
- 8.57 Differences in the depreciation charges produced by the two methods of depreciation occur in each year until the asset reaches the end of its useful life or is written off.
- 8.58 Similarly, the depreciation rates will be affected by the assumptions used to determine an asset's useful economic life. The prescribed lives of standard assets may be different under tax rules than under regulatory requirements.
- 8.59 Differences in regulatory and tax depreciation rates that are attributable to the type of depreciation used and the asset lifetime assumptions do not, however, cause a difference in the total amount of depreciation that is realised in nominal terms over

¹⁴⁰¹ Incenta for Chorus “Fibre Emerging Views submission – Taxation and the WACC report” (July 2019), page 2.

the lifetime of an asset. If the opening value of the tax asset is the same as the RAB value, then the difference is simply a matter of timing.

- 8.60 There are factors that can cause a difference in the total value of depreciation when one approach is compared to the other in nominal terms.

8.60.1 **Revaluations.** Tax rules do not allow for asset revaluations, whereas revaluations of the RAB may occur through indexation. The consequence of this is typically that the amount of capital returned to businesses through regulatory depreciation in the presence of revaluations over the lifetime of the asset will exceed the cumulative value of tax depreciation deductions recognised by the IRD during that time.

8.60.2 **Acquisitions through asset purchases.** Tax rules require the tax book value of an asset to be reset to the acquisition price when sale and purchase transactions occur. In contrast, regulatory rules maintain the existing regulatory tax value of an asset in the RAB when it changes ownership. This is because, without some form of compensation, using the new purchase price to determine the value of the RAB, and thus the future return on and of capital, would not be consistent with the asset producing normal returns over its lifetime.

Stakeholder views on approach to taxation

- 8.61 Our draft decision was to use the tax payable approach as it is consistent with FCM. All other things being equal, it is desirable for the tax costs disclosed by a regulated provider in each disclosure year to be more (rather than less) reflective of the tax obligations matching the costs and revenues attributable to that period, and for the tax costs to reflect the cash tax costs imposed by the IRD for the period.¹⁴⁰²
- 8.62 Stakeholders generally supported our draft decision to use the tax payable approach. Enable and Ultrafast Fibre noted that it provides a relatively simple approach to estimating tax obligations of the regulated entity and, in maintaining consistency with tax rules as far as practicable, will assist regulated providers to comply with the ID IMs in a cost-effective way.¹⁴⁰³

¹⁴⁰² Commerce Commission “Fibre input methodologies – Draft decision paper” (19 November 2019), paragraph 3.1883.

¹⁴⁰³ Enable and Ultrafast Fibre “Submission on NZCC Fibre Input Methodologies: Draft Decision – Reasons Paper and Draft Fibre Input Methodologies Determination” (30 January 2020), page 15; Chorus “Submission on Fibre input methodologies: Draft decision – reasons paper dated 19 November 2019 and Draft fibre input methodologies determination 2020 dated 11 December 2019” (30 January 2020), page 98; Northpower “Submission on [Draft] Fibre Input Methodologies Determination 2020 and Fibre input methodologies draft decision - reasons paper” (30 January 2020), page 4.

Key components of the tax IM

- 8.63 The key components of the final decisions relating to the tax IM are:
- 8.63.1 determination of regulatory profit/(loss) before tax;
 - 8.63.2 determination of regulatory tax allowance values for PQ;
 - 8.63.3 deductions for regulatory tax purposes;
 - 8.63.4 the treatment of the tax position in the wider tax group and tax losses;
 - 8.63.5 the tax treatment of acquisitions from other regulated entities;
 - 8.63.6 establishing the initial regulatory tax asset value.

Determination of regulatory profit/(loss) before tax

Final decision

- 8.64 Our final decision is not to include a specified formula for “regulatory profit/(loss) before tax” for ID purposes at clause 2.3.1(5) in the IM determination. Regulatory profit/(loss) before tax will be determined in accordance with an ID determination.
- 8.65 Our final decision is not to include a specified formula for “regulatory profit/(loss) before tax” for PQ purposes at clause 3.4.1(4) in the IM determination, where this value will be “as determined by the Commission when specifying a price-quality path. In its submission on our draft determination, Chorus had “no issues” with this approach.¹⁴⁰⁴

Rationale for final decision for ID purposes

- 8.66 Our IM determination at clause 2.3.1(5) provides that regulatory profit/(loss) before tax for the purpose of determining regulatory taxable income for ID is to be determined in accordance with an ID determination.
- 8.67 Our final decision is not to specify a formula for “regulatory profit / (loss) before tax” in the ID IMs at this time as we consider that specifying this formula would require a building blocks formula in order to assess a regulated provider’s profitability.
- 8.68 As the ID determination must still be made, we have not yet determined what building blocks to specify to allow interested persons to assess whether the purpose of Part 6 in s 162 is being met. In particular, we have not yet decided how to allow for an assessment of whether regulated providers are limited in their ability to

¹⁴⁰⁴ Chorus “Appendix C: Chorus Proposed Amendments to the Draft IM Determination” (30 January 2020), page 21.

extract excessive profits, an outcome we are required to promote under s 162(d). As we have not decided how to assess profitability under ID regulation and are unlikely to know this until we have collected more information as part of our ID determination process, we will specify this formula in our ID determination.

- 8.69 If we specified this formula now, it is likely that it would need to be amended as part of our ID determination process once we have decided how to assess profitability under ID regulation. As such, specifying this formula now would not further the purpose of IMs in s 174 as it would not promote certainty.
- 8.70 Section 176(2) provides that “Every input methodology must, as far as reasonably practicable ... set out the matters listed in subsection (1) in sufficient detail so that each affected regulated fibre service provider is reasonable able to estimate the material effects of the methodology on the provider.” We do not consider it would be “practicable” here to specify this formula in the IMs for the reasons outlined in paragraphs 8.68-8.69.

Stakeholder views on “regulatory profit/(loss) before tax” for ID purposes

- 8.71 Chorus submitted that, as currently drafted, the IM is unclear on how we will determine a formula for calculating the regulatory tax allowance and that it considers a formula should be included.¹⁴⁰⁵ The formula Chorus proposed was:

$$\text{Regulatory taxable income} = \text{Revenue (ignoring revaluation gains)} - \text{Notional interest} - \text{Tax Depreciation} - \text{Opex}$$

- 8.72 There were no other submissions in respect of this matter.

Our response to stakeholder views on “regulatory profit/(loss) before tax” for ID purposes

- 8.73 With the exception of tax depreciation, the formula Chorus has proposed for regulatory taxable income ignores permanent and temporary differences that would arise in applying tax rules under a tax payable approach.
- 8.74 Removing the reference to tax rules also means that changes in tax law affecting the calculation of assessable income would not be captured.
- 8.75 For these reasons a formula such as Chorus has proposed is unlikely to better approximate the actual tax costs faced by the regulated provider than a formula based on the application of tax rules. Because of this we do not consider that it would best give (or be likely to best give), effect to s 162 (as required under s 166(2)).

¹⁴⁰⁵ Chorus “Appendix C: Chorus Proposed Amendments to the Draft IM Determination” (28 January), page 16.

- 8.76 For the reasons set out in paragraphs 8.67-8.69 above, we disagree with Chorus' submission to specify a formula at this time for calculating the regulatory tax allowance.

Determination of regulatory tax allowance values for PQ

Final decision

- 8.77 Regulatory tax allowance values are (unless explicitly specified otherwise) determined in accordance with the IMs for each PQ path by applying forecasts in respect of PQ FFLAS for all regulatory years after the base year of:
- 8.77.1 notional deductible interest;
 - 8.77.2 tax deductions for depreciation using tax depreciation rules; and
 - 8.77.3 any other amount determined after applying the tax rules, where:
 - 8.77.3.1 any revaluation included in regulatory profit / (loss) before tax; must be ignored; and
 - 8.77.3.2 the effect of any tax losses (other than those incurred in the provision of FFLAS)) made by a regulated provider must be ignored.

Rationale for final decision

- 8.78 We consider that this decision:
- 8.78.1 provides sufficient certainty about how most regulatory tax allowance values will be determined for PQ, consistent with the purpose of the IMs in s 174;
 - 8.78.2 reduces potential compliance costs for regulated providers by predominantly avoiding the need to apply different methodologies for the determination of regulatory tax allowance values between the ID IMs and the IMs applying for PQ regulation.
- 8.79 Our draft decision was to specify key regulatory tax allowance values for PQ on the basis of actual values determined in accordance with the ID IMs.¹⁴⁰⁶
- 8.80 As a result of our "third overarching decision" in respect of implementing reg 5 and reg 6, our further consultation decision was to specify that regulatory tax allowance values are (unless explicitly specified otherwise) determined for each PQ path of the

¹⁴⁰⁶ [DRAFT] Fibre Input Methodologies Determination 2020 (11 December 2019), clause 3.3.1(1).

basis of actual values determined for a “base year” in respect of a regulated provider’s PQ FFLAS.¹⁴⁰⁷ The further consultation decision, which expanded on our draft decision, was a consequence of the difference of the scope of services between FFLAS subject to ID regulation and PQ regulation for Chorus.

Stakeholder views

- 8.81 We did not receive any submissions on our further consultation decision in respect of tax. Chorus had “no issues” with our draft decision approach.¹⁴⁰⁸

Deductions for regulatory tax purposes

Final decision

- 8.82 When calculating regulatory taxable income, the cost allocation IM and tax rules are to be used, to the extent practicable and subject to other relevant provisions in the IMs.
- 8.83 Debt interest should be calculated using a leverage and cost of debt as determined in the cost of capital IM and the asset valuation IM as appropriate for each component on which debt interest is calculated.

Rationale for final decision

- 8.84 An issue for regulators lies in identifying the proportion of the annual tax liability that is attributable to the provision of regulated services. Under Part 6, this can be difficult where regulated providers also supply services that are not regulated FFLAS. To address this complicating factor, an estimate of tax costs can be derived by applying tax legislation to the regulatory accounts of the regulated part of the business, to the extent practicable, and subject to other relevant provisions in the IMs (*ie* the IMs have precedence). Our final decision is that the regulatory accounts, and the revenue and expenses used to derive regulatory net income, are determined by applying the cost allocation IM to the operating costs and asset values associated with regulated FFLAS supplied by regulated providers.
- 8.85 Given that we have not decided for the allocation of debt costs to be covered by the cost allocation IM, a decision is required on the way in which, and thus how much, debt interest should be allocated to regulated FFLAS when making an assessment of regulatory net income. This is because debt is typically issued on a consolidated (*ie*, whole group) basis.

¹⁴⁰⁷ Commerce Commission “Fibre input methodologies Further consultation draft – reasons paper” (23 July 2020), para 2.44-2.50.

¹⁴⁰⁸ Chorus “Appendix C: Chorus Proposed Amendments to the Draft IM Determination” (30 January 2020), page 21.

- 8.86 A simple way to address this problem is to use a proxy deduction for interest, found by multiplying the interest rate on debt capital by a ‘benchmark’ leverage ratio and by the value of the total RAB.
- 8.87 Our final decision is that the level of debt attributed to the regulated part of the business in calculating regulatory tax is based on the ‘benchmark’ level of leverage used in calculating the regulatory WACC. This ensures that the treatment is consistent with two main ways in which the regulatory WACC can potentially be calculated (ie, ‘vanilla’ WACC, and ‘post-tax’ WACC).

Stakeholder views

- 8.88 Our final decision, to use a leverage and cost of debt as determined in the cost of capital IM and the asset valuation IM as appropriate for each component on which debt interest is calculated, is consistent with our draft decision, which was generally supported by stakeholders.
- 8.89 Chorus agreed with our draft decision to calculate debt interest attributed to the regulated FFLAS using a leverage and cost of debt as determined in the cost of capital IM and the asset valuation IM, as appropriate for each component.¹⁴⁰⁹

Treatment of tax position in the wider tax group and tax losses

Final decision

- 8.90 The tax position across a regulated provider’s wider tax group should be ignored when estimating tax costs. Any tax losses generated by a regulated provider in the supply of regulated FFLAS should not be set-off immediately against profits from other activities but should be notionally carried forward to the following disclosure year.

Rationale for final decision

- 8.91 Our draft decision was that tax losses should be recognised and be notionally carried forward until there is sufficient taxable profit in the regulated business.¹⁴¹⁰
- 8.92 There is not a clear case for taking into account the tax position in the wider tax group. It is not obvious, for example, that an issue of allocative or dynamic efficiency is at stake.

¹⁴⁰⁹ Chorus “Submission on Fibre input methodologies: Draft decision – reasons paper dated 19 November 2019 and Draft fibre input methodologies determination 2020 dated 11 December 2019” (30 January 2020), page 98.

¹⁴¹⁰ Commerce Commission “Fibre input methodologies – Draft decision paper” (19 November 2019), paragraph 3.1951.

- 8.93 We consider that ignoring the tax position across a regulated provider's wider tax group is simpler and provides for certainty of tax treatment consistent with the purpose of the IMs in section 174 for two reasons:
- 8.93.1 Not taking into account the tax position of the wider tax group means the parties applying the IMs do not have to make potentially arbitrary assumptions about that group tax position to calculate tax costs; and
 - 8.93.2 The historical wider tax group position is subject to assessment by the IRD. Allowing the carry-forward of the regulated entity's losses without group loss offset means the tax effect of transactions, or the unpicking of transactions, and the associated complexity of this can be ignored.
- 8.94 By notionally carrying forward tax losses, end-users will be worse off than if the tax losses were immediately recognised (ie, they would experience higher prices) to the extent of the time value of money relating to the tax effect of any of the tax losses for the deferral period. We do not consider this is likely to be material. In respect of losses carried forward to the post-implementation period (1 January 2022), based on the provisional nature of the information that we have at this point, and the need to make potentially arbitrary group loss-offset assumptions, we do not know and cannot know for sure to what extent regulated providers may have enjoyed the time value of money benefit of losses and whether the benefit is material.
- 8.95 The opening tax losses at the implementation date will include the roll-forward of tax losses at the end of the UFB initiative period. Our methodology for determining tax losses before the implementation date will be specified in our final decisions on the initial value of the financial loss asset. This will be addressed in a separate decision paper to be published on 3 November 2020.
- 8.96 We note that clause 2.3.3(3)(a) of the IMs specifies that "opening tax losses" for disclosure year 2022 are "UFB closing tax losses as determined under Schedule B on the last day of financial loss year 2022". We intend to specify what "UFB closing tax losses" are in a separate schedule in the IMs (Schedule B) as part of our determination accompanying our separate decision paper to be published on 3 November 2020. We note that the content in Schedule B has not been determined yet, and has been subject to a separate consultation process. When we determine the content in Schedule B, we will update the cross-reference to "Schedule B" in clause 2.3.3(3)(a) to reflect the applicable cross-references in Schedule B.

Stakeholder views

- 8.97 Chorus agreed with our draft decision to ignore the tax position of a regulated provider's wider group when estimating tax costs and to notionally carry forward any tax losses generated by a regulated provider to the following disclosure year.¹⁴¹¹
- 8.98 Enable and Ultrafast Fibre supported ignoring the tax position of the wider corporate entities which provide the regulated services. They submitted that this is consistent with the overarching approach to the tax building block which is to estimate the notional tax obligations of the regulated service – noting that the regulated provider is not necessarily of itself a tax paying entity.¹⁴¹² We agree.
- 8.99 Spark submitted that the tax benefit of losses should be applied against the group tax position at the time the loss is identified, and if there are large losses the impact on end user prices will be material.¹⁴¹³
- 8.100 Spark agreed that there is no obvious allocative or dynamic efficiency at stake, but questioned why the regulated provider should capture the benefit rather than end-users or that there is minimal value at stake. Spark states that Vodafone notes that loss estimates have been as high as \$2b and, if calculated losses were half this amount in practice, it could add around \$1 per month to end user prices.
- 8.101 Spark recommended that the Commission net off the benefit at the time it occurs and adds that the draft decision approach appears to add unnecessary complexity for little benefit. If the time value of money is not material as suggested in the draft decisions, then there should be no concern with the approach.

Our response to stakeholder views

- 8.102 Consistent with our draft decision, we consider it appropriate to recognise the benefit of the tax losses in the year they can be used by the notional regulated provider. This is because there is not a clear case for taking into account the tax position in the wider tax group.
- 8.103 Not requiring an immediate loss offset means that parties applying the IMs do not have to make potentially arbitrary assumptions about the tax position of the wider tax group, as would be the case if we adopted Spark's suggested approach.

¹⁴¹¹ Chorus "Submission on Fibre input methodologies: Draft decision – reasons paper dated 19 November 2019 and Draft fibre input methodologies determination 2020 dated 11 December 2019" (30 January 2020), page 98.

¹⁴¹² Enable Networks Ltd and Ultrafast Fibre Ltd – Submission on Fibre input methodologies – Draft decision – 30 January 2020, paragraph 11.2.

¹⁴¹³ SparkNZ – Submission on Fibre input methodologies – Draft decision – 28 January 2020, paragraphs 39-42.

- 8.104 In respect of losses carried forward into the implementation period, even if our approach to the methodology for the initial value of the financial loss asset had been determined and we had regulated providers' final inputs to the calculation, we would still then have to consider how the resulting notional tax losses might map onto the historical loss position of the group as returned to the IRD. This would require potentially arbitrary assumptions to be made about the tax situation of activities other than UFB activities but would be necessary to determine the extent to which regulated providers had enjoyed the time value of money benefit of the losses relating to UFB activities to support an immediate group loss-offset assumption.
- 8.105 The need to make potentially arbitrary assumptions to apply an immediate group tax loss offset was raised in Incenta's submission on our emerging views paper:
- The assumption that tax losses are able to be used in other activities requires assumptions about the tax situation of a supplier in activities outside of the regulated services, which is undesirable and could be speculative. – For Chorus, its main other activity is the provision of copper services, and the relevant question is whether the regulatory tax allowance provided for these services is sufficient to soak up the entirety of the tax losses for the UFB...¹⁴¹⁴
- 8.106 We recognise that end-users will be worse off (ie, they would experience higher prices) to the extent of the time value of money relating to the tax effect (28%) of the deferral of losses, but, based on the provisional nature of the information that we have at this point, and the need to make potentially arbitrary group loss-offset assumptions, we do not know and cannot know for sure to what extent regulated providers may have enjoyed the time value of money of losses deferred in the pre-implementation period and whether the benefit is material.
- 8.107 As part of our consideration of Spark's suggested approach for our final decision on the Tax IM, we have considered, as an example, the data in the workbook attachment that Chorus provided in its submission on our further consultation draft on the initial value of the financial loss asset. Based on that data, and subject to the caveats on the calculations that Chorus has noted, the notional time value of money associated with the deferral of losses would be less than 1% of the sum of the opening RAB values at the implementation date.¹⁴¹⁵
- 8.108 We will not know the final notional time value of money effect until we have determined the methodology for the initial value of financial loss asset and confirmed the cashflow input values for the UFB initiative period (1 December 2011 to 31 December 2021).

¹⁴¹⁴ Incenta for Chorus "Fibre Emerging Views submission – Taxation and the WACC report" (July 2019), page 16

¹⁴¹⁵ Chorus submission on "Fibre input methodologies – Further consultation draft (initial value of financial loss asset)", 10 September 2020, Appendix 3.

- 8.109 Based on the information given to us by Spark, we have no evidence on which to assess whether Spark's suggestion would be likely to best give effect to the purpose of s 162 (as required under s 166(2)).
- 8.110 In respect of Spark's submission that if the time value of money is not material then the draft decision approach appears to add unnecessary complexity for little benefit, we do not consider that the implementation of carry-forward rules is any more complex than the establishment of a correct group tax position to enable a group loss offset. Our view is that, because our approach does not require additional assumptions about the group tax position, it is simpler. We also note, in respect of the implementation of carry-forward rules, that similar rules already exist in our Part 4 IMs.¹⁴¹⁶

Tax treatment of acquisitions from other regulated entities

Final decision

- 8.111 Like the RAB value, the regulatory tax asset value of acquired assets is to remain unchanged in the event of an acquisition of assets used to supply regulated services (ie, from another regulated provider under Part 6 or from a supplier of services regulated under Part 4).

Rationale for final decision

- 8.112 To implement the tax payable approach, regulated providers will need to calculate regulatory tax depreciation by applying depreciation rules specified under tax rules to the regulatory tax asset value of their investments.
- 8.113 We note that under tax rules, unlike the sale and purchase of shares, the sale and purchase of assets will typically result in the purchaser being able to claim depreciation for tax purposes on the assets based on the purchase price, while the seller may be subject to clawback of depreciation where the proceeds exceed the depreciated tax asset value.
- 8.114 In the event of future asset acquisitions, we consider that, like the RAB value, the regulatory tax asset value of the acquired assets should remain unchanged (ie not be adjusted to reflect the transaction price, which is how the tax asset value would be recognised under tax rules in most cases).
- 8.115 Although this departs from the approach under tax legislation, the merits of this approach are that:

¹⁴¹⁶ Loss carry forward rules are included at clause 2.3.2 of the EDB, gas transmission and gas distribution IMs.

- 8.115.1 regulated providers acquiring assets retain the net tax benefits of the transaction, but also bear any subsequent costs (ie, should the IRD revisit the tax consequences of the transaction);
 - 8.115.2 excessive profits and incentives to pay a significant premium over the RAB value are limited by ignoring any acquisition premium (ie, post-sale RAB is equal to pre-sale RAB), consistent with s 162(d); and
 - 8.115.3 incentives are retained to make efficiency gains to cover any acquisition premium over RAB, and these efficiency gains would still be shared with end-users over time, consistent with s 162(b) and (c).
- 8.116 An alternative approach would be to set the regulatory tax asset value to the acquisition cost of the assets, consistent with recognition under tax rules in most cases. This would, however, require providing the regulated provider that purchases the assets with an NPV-adjustment to the RAB value to compensate the buyer for any premia it paid as a result of the tax depreciation clawback consequences of the acquisition.
- 8.117 It would also require the tax benefits of the adjusted regulatory tax asset value to be shared with end-users. Therefore, the tax consequences of the transaction might imply the need for significant price changes for the end-users of the selling and purchasing providers of regulated services (ie, up and down respectively).
- 8.118 We do not favour this option as it would not be consistent with regulated providers retaining the same amount of the net tax benefits of an acquisition (where such benefits arise). This may have the effect of not promoting some efficiency-enhancing trades, as effectively as the approach set out in the final IM decision.

Stakeholder views

- 8.119 In its submission Chorus noted there are certain circumstances in which the initial tax asset value could be reset. One such circumstance is the tax depreciation clawback for certain transactions, where assets rather than shares in a business are traded, and the seller may also have a tax liability. Chorus stated it is pleased the Commission has accepted Incenta's submission that the taxation asset value should not be reset as a consequence of a transaction, but rather that the previous tax asset value should be carried forward as if the transaction did not occur.¹⁴¹⁷

¹⁴¹⁷ Chorus "Submission on Fibre input methodologies: Draft decision – reasons paper dated 19 November 2019 and Draft fibre input methodologies determination 2020 dated 11 December 2019" (30 January 2020), paragraph 161.

- 8.120 Enable and Ultrafast Fibre also supported the regulatory tax asset value remaining unchanged if the assets are acquired from another regulated provider.¹⁴¹⁸

Establishing the initial regulatory tax asset value

Final decision

- 8.121 The initial regulatory tax asset value of fibre assets is to be set at implementation date (1 January 2022).
- 8.122 Whether regulatory tax asset values will need to be adjusted downward (ie, where the RAB value is lower than the equivalent actual tax book value for the same assets recognised under tax rules) will depend on the date on which regulatory tax assets are commissioned in the provision of regulated FFLAS. If applicable, regulatory tax asset values for fibre assets in the unallocated initial RAB will be reduced by an amount proportional to the amount by which the adjusted tax values of all fibre assets on the implementation date exceeds the unallocated opening fibre asset values as of that date.
- 8.123 Our methodology for setting the initial regulatory tax asset values of UFB assets during the UFB initiative period will be specified in our final decisions on the initial value of the financial loss asset. This will also include us having regard to views received from interested persons on our draft tax methodology for the pre-implementation period.
- 8.124 The setting of the regulatory tax asset value at implementation date should have the same level of assurance or audit undertaken as for the setting of the RAB.

Rationale for final decision

- 8.125 The establishment of the initial regulatory tax asset value is comparable to the establishment of the initial RAB value. Both decisions have an effect on the profits that will be earned in the future on investments made in the past. We must be careful to avoid creating windfall gains or losses when setting the initial tax asset values, as doing so could be inconsistent with s 162(d) and (a) respectively.
- 8.126 Changes in initial regulatory tax asset values have similar effects to changes in regulatory asset values. In the case of the regulatory tax asset value, however, lower values are more beneficial to regulated providers. This is because a lower value implies that deductions for tax depreciation will be lower in future and would therefore result in a higher estimate of a regulated provider's tax allowance under PQ regulation and tax costs under ID.

¹⁴¹⁸ Enable Networks Ltd and Ultrafast Fibre Ltd – Submission on Fibre input methodologies – Draft decision – 30 January 2020, paragraph 11.3.

- 8.127 We consider it reasonable to adjust regulatory tax asset values downward where the initial RAB value is lower than the equivalent actual tax book value for the same assets recognised under tax rules. This treatment ensures that there is not an obvious difference between the way regulatory tax asset values are established initially and the way that they will be treated during future transactions.
- 8.128 As we noted in our draft decisions paper,¹⁴¹⁹ we recognise that under the Tax Administration Act 1994,¹⁴²⁰ businesses are only required to keep information for reporting purposes for seven years. However, given that regulated providers have supported the approach to roll forward the asset values from 1 December 2011, we assume that this information is available.

Error correction in the definition of “notional tax asset value”

- 8.129 In our [Draft] Fibre Input Methodologies Determination 2020¹⁴²¹ and [Further consultation] Fibre Input Methodologies Determination 2020¹⁴²² we specified in clause 2.3.2(3)(a)(i) that the “notional tax asset value” in respect of a fibre asset in the initial RAB is the adjusted tax value of that asset “as of the implementation date adjusted to account proportionately for the difference between the sum of the unallocated initial RAB values for all core fibre assets and the opening RAB value of the financial loss asset; and sum of the adjusted tax values of all fibre assets in an initial RAB.”
- 8.130 Our reference to “and the opening RAB value of the financial loss asset” in clause 2.3.2(3)(a)(i) in our [Draft] Fibre Input Methodologies Determination 2020 and [Further consultation] Fibre Input Methodologies Determination 2020 was in error as it does not create an equivalent regulatory tax asset value for the same assets recognised under tax rules, as envisaged under paragraph 8.127. We consider that an adjustment that is determined using the sum of the adjusted tax values of fibre assets must only use the equivalent RAB values of those fibre assets which have an adjusted tax value. As the financial loss asset will not have an adjusted tax value, we have not included the phrase “and the opening RAB value of the financial loss asset” in clause 2.3.2(3)(a)(i) of our fibre IMs.¹⁴²³

¹⁴¹⁹ Commerce Commission “Fibre input methodologies – Draft decision paper” (19 November 2019), paragraph 3.1973.

¹⁴²⁰ Section 22(2B) subject to s 22(5).

¹⁴²¹ Commerce Commission “[Draft] Fibre Input Methodologies Determination 2020” (11 December 2019), clause 2.3.2(3)(a)(i).

¹⁴²² Commerce Commission “[Further consultation] Fibre Input Methodologies Determination 2020” (23 July 2020), clause 2.3.2(3)(a)(i).

¹⁴²³ We note that there are some other assets included in the sum of unallocated initial RAB values that will not have an adjusted tax value, for example, right of use assets, but consider these are unlikely to materially affect the capping adjustment.

Stakeholder views

- 8.131 Our draft decision was that the initial regulatory tax asset value is to be set at implementation date. The initial regulatory tax asset value may be determined from the roll forward of the tax asset value of the asset from the beginning of the UFB initiative on 1 December 2011 and should not exceed the RAB value as at 1 December 2011 used to establish the initial RAB as at the implementation date.¹⁴²⁴
- 8.132 Our draft decision was that the setting of the regulatory tax asset value at implementation date should have the same level of assurance or audit as for the setting of the RAB.¹⁴²⁵
- 8.133 Enable and Ultrafast Fibre supported establishing the initial regulatory tax value based on a roll forward of the tax value of the assets constructed from the beginning of the UFB initiative, after applying the same allocation ratios as applied to the UFB asset values.¹⁴²⁶
- 8.134 Chorus also supported determining the initial tax asset value at implementation date by rolling forward the value of the asset as at 1 December 2011, capping the initial tax asset value at the RAB value as at 1 December 2011 and requiring the same level of assurance or audit as for the setting of the RAB.¹⁴²⁷
- 8.135 In respect of the capping, in its earlier submission on our emerging views paper, Chorus considered that setting the initial regulatory tax asset value at the lesser of the actual tax book value and the RAB is appropriate noting the capping gives recognition to the view that applying the actual tax book value may be unreasonable where the tax value has been reset at a materially higher value as a consequence of a transaction.¹⁴²⁸
- 8.136 Chorus suggested several drafting changes in respect of the draft determination 2020 relating to the post-implementation tax IM were suggested by Chorus.¹⁴²⁹
- 8.137 Chorus submitted that clause 2.3.1(6)(b) of the draft determination appears to propose calculating the tax depreciation from the apportioned tax asset value and

¹⁴²⁴ Commerce Commission “Fibre input methodologies – Draft decision paper” (19 November 2019), paragraph 3.1963.

¹⁴²⁵ Commerce Commission “Fibre input methodologies – Draft decision paper” (19 November 2019), paragraph 3.1964.

¹⁴²⁶ Enable Networks Ltd and Ultrafast Fibre Ltd – Submission on Fibre input methodologies – Draft decision – 30 January 2020, paragraph 11.3

¹⁴²⁷ Chorus “Submission on Fibre input methodologies: Draft decision – reasons paper dated 19 November 2019 and Draft fibre input methodologies determination 2020 dated 11 December 2019” (30 January 2020), page 46.

¹⁴²⁸ Chorus “Fibre Emerging Views submission” (16 July 2019), page 132

¹⁴²⁹ Chorus “Appendix C: Chorus Proposed Amendments to the Draft IM Determination” (30 January 2020), page 16

that this would be a complex exercise. Chorus considered a simpler approach is to use the same allocator used to apportion the shared asset's value, capex or depreciation instead.

- 8.137.1 Chorus' proposed approach for calculating tax depreciation would need to be applied after the initial regulatory tax asset value capping adjustment, where relevant and could give rise to incorrect depreciation values where the depreciation profiles of tax assets and regulatory assets are different, for example where tax depreciation is calculated on a diminishing value basis or the tax lives of assets differ from the regulatory lives. We note that the provision is consistent with the tax depreciation calculation provisions in the EDB IMs which have been applied historically by EDBs.¹⁴³⁰ Therefore, we do not consider a change is necessary.
- 8.138 Chorus also submitted that the definition of "tax asset value" in clause 2.3.2(2) is vague in that it is defined in relation to the "tax depreciation rules", which does not seem appropriate as the tax value is a value not a meaning. Chorus proposed that the draft determination definition be improved by stating that the "adjusted tax value" is the value that is consistent with what Chorus uses for calculating taxation for the IRD.
- 8.139 Clause 2.3.2(2) requires "the value of the fibre asset determined by applying the tax depreciation rules to its notional tax asset value." We consider this describes a value rather than a 'meaning' and is therefore appropriate. Therefore, we do not consider a change is necessary.

¹⁴³⁰ "Electricity Distribution Services Input Methodologies Determination 2012" (consolidated 20 May 2020), clause 2.3.8(3)

Chapter 9 Final decisions: Regulatory processes and rules IM

Table 9.1 Summary of final decisions on regulatory processes and rules IM

Issue	Final decision
Specification of price	Specify allowable revenue which comprise building blocks revenue, pass-through costs and a wash-up amount.
Specification of price	Account for customer discounts and rebates in accordance with GAAP when calculating allowable revenues.
Specification of price	Do not include details of wash-ups, revenue smoothing, treatment of inflation, or the form of control for future regulatory periods.
Pass-through costs	Apply cost allocation rules.
Pass-through costs	Include telecommunications levies as pass-through costs.
Pass-through costs	Include local authority rates and dispute resolution scheme membership fees as pass-through costs.
Pass-through costs	Do not include a 'recoverable cost' category, nor audit, verifier or self-insurance costs; do not include a pass-through cost provision to allow future unforeseen costs.
Reconsideration events	Scope and definition of reopener events: catastrophic event, change event, GAAP change, error, major transaction.
Reconsideration events	Set materiality thresholds for some reopeners; based on costs as a percentage of revenue, impact on quality, or value of RAB.
Reconsideration events	Set out our information and process requirements for reconsidering a PQ path; set out considerations and constraints on amending the PQ path.
Regulatory balance dates	Set the regulatory balance date for PQ purposes with a 31 December year-end; do not stipulate a balance date for ID purposes.
Other topics not included	Do not include proposal/evaluation process, pricing methodologies, or expenditure incentives.

Structure of this chapter

9.2 This chapter sets out our final decisions and reasons for the regulatory processes and rules (**RPR**) IM and is structured as follows:

9.2.1 context for the RPR IM;

9.2.2 final decisions on:

9.2.2.1 specification and definition of prices (paragraphs 9.13 to 9.46);

9.2.2.2 pass-through costs (paragraphs 9.47 to 9.72);

9.2.2.3 reconsideration circumstances (paragraphs 9.73 to 9.145); and

9.2.2.4 regulatory balance dates (paragraphs 9.146 to 9.166).

9.3 We have also set out our final decisions on topics we have not included in the RPR IM (paragraphs 9.169 to 9.184).

Overview of the regulatory processes and rules IM

9.4 As well as the IMs set out in previous chapters, section 176(1)(c) of the Act states that we must set an IM relating to:

regulatory processes and rules, such as—

- (i) the specification and definition of prices, including identifying any costs that can be passed through to prices (which may not include the legal costs of any appeals against input methodology determinations under this Part); and
- (ii) identifying circumstances in which a price-quality path may be reconsidered within a regulatory period

9.5 The wording of this section is the same as that of the Commerce Act equivalent, s 52T, which sets out regulatory processes and rules as matters covered by IMs.

9.6 As set out in the regulatory framework chapter at paragraph 2.325, the mandatory IMs specified in s 176(1) will underpin the relevant s 170 determination to determine what is to be disclosed as return on investments under ID regulation, or to determine maximum revenue under PQ regulation. It is in combination with each other, and with other requirements in a s 170 determination, that IMs provide incentives for regulated providers to act in a manner consistent with the s 162 purpose statement.

9.7 We consider the main ways in which the RPR IM promotes outcomes consistent with outcomes expected in workably competitive markets are as follows.

- 9.7.1 Our decision on the specification and definition of prices provides for a number of costs that can be passed through to prices, and those are costs a provider in a workably competitive market might be expected to pass through to prices directly.
- 9.7.2 Our decision on reconsideration events promotes the outcomes described in ss 162 (b) and (d) by ensuring PQ regulation reflects the intended quality and revenue outcomes by allowing for the PQ-path to be reopened as needed. The reconsideration rules also promote competition in telecommunications markets, as explained in paragraph 9.78.

Scope of the RPR IM

9.8 Our view is that the purpose of the RPR IM is to set out processes and rules to ensure the new fibre regime functions effectively, by underpinning key PQ decisions, and also by setting out important definitions that underpin ID regulation and facilitate the application of other IMs. Consistent with our draft decisions, we are only determining matters for the RPR IM set out in s 176(c) – specification and definition of prices, pass-through costs, and reconsideration circumstances – along with rules for regulatory balance dates. As such, this chapter covers the following decisions that are in scope of the RPR IM:

- 9.8.1 specification and definition of prices (specifies allowable revenue, which comprises building blocks revenue, pass-through costs and a wash-up amount);
- 9.8.2 pass-through costs (which include telecommunications levies, local authority rates and dispute resolution scheme membership fees as pass-through costs);
- 9.8.3 reconsideration events (include catastrophic event, change event, GAAP change, error and major transactions as reconsideration events); and
- 9.8.4 regulatory balance dates (set 31 December year-end as balance date for PQ purposes; do not stipulate a balance date for ID purposes).

9.9 We consider our approach to setting the RPR IM will help us implement PQ and ID regulation effectively. While we expect the RPR IM will only directly apply to PQ regulation, there may be instances where the RPR IM may be relevant to ID regulation. For example, ID requirements might cross-reference the definition of “pass-through costs” in the IM for disclosure purposes.

9.10 While the Act does not require us to define regulatory balance dates in the RPR IM, our view is that doing so will promote certainty, as required by s 174, by helping Chorus prepare to be subject to PQ regulation. However, for the reasons set out in the relevant sections, we do not consider the RPR IM should cover other topics requested by stakeholders, such as:

- 9.10.1 extensive details regarding wash-up and revenue smoothing mechanisms, nor the form of control for future regulatory periods (see “specification price” section);
- 9.10.2 recoverable costs (see “pass-through costs” section); or
- 9.10.3 proposal/evaluation process for PQ regulation, pricing methodologies, or expenditure incentives (see “other topics not included” section).

Summary of submitters’ views on the RPR IM

9.11 We did not include the RPR IM in our draft decisions published in late 2019. Instead, we published a separate RPR draft determination and reasons paper in April 2020 to give stakeholders an opportunity to comment on our RPR draft decisions.¹⁴³¹ We had previously published a topic paper in August 2019 which set out our emerging views on the scope and content of the RPR IM.¹⁴³²

9.12 We received submissions on the RPR draft decisions in May, and cross-submissions in June 2020. Some of the main themes that came through in submissions were as follows:

- 9.12.1 the Commission should clarify that the definition of total FFLAS revenue adjusts for customer discounts and rebates in accordance with GAAP;
- 9.12.2 the Commission should clarify that cost allocation rules apply to pass-through costs, such as telecommunications levies;
- 9.12.3 local authority rates and fixed costs associated with dispute resolution schemes should be included as pass-through costs;
- 9.12.4 regulatory balance dates should align with each regulated provider’s financial year; and

¹⁴³¹ See Commerce Commission “[Draft] Fibre input methodologies – Regulatory processes and rules draft decision – Reasons paper” (6 April 2020).

¹⁴³² See Commerce Commission “Fibre input methodologies – Regulatory processes and rules topic paper” (19 August 2019).

- 9.12.5 the thresholds for reconsideration events should include the impact on quality standards.

Final decision: specification and definition of prices

- 9.13 Our final decision is to specify and define prices as maximum revenues in the form of a revenue cap for Chorus, in accordance with s 195 of the Act. Under the revenue cap, in each year of the regulatory period, total FFLAS revenue recovered by Chorus must not exceed its allowable revenue. Our final decision is also that total FFLAS revenue is defined in nominal terms, exclusive of GST, and after accounting for discounts and rebates in accordance with GAAP.
- 9.14 Our final decision is that allowable revenue for a regulatory year in a regulatory period will comprise the following components:
- 9.14.1 building blocks revenue determined by the Commission as part of the PQ path-setting process;
 - 9.14.2 pass-through costs (see discussion from paragraph 9.47); and
 - 9.14.3 a wash-up amount, including the wash-up applicable under s 196(2) of the Act, also determined by the Commission as part of the PQ path-setting process.
- 9.15 Our final decision is that wash-ups, revenue smoothing and treatment of inflation are not matters that will be included in the RPR IM. We are not required to address these matters in the RPR IM under s 176(1)(c) of the Act and we consider that the design of these mechanisms is best considered in the context of overall decisions on the allocation of risk and incentives under PQ paths.

Rationale for our final decision on specification and definition of prices

- 9.16 In implementing PQ regulation, the Commission:
- 9.16.1 must specify the maximum prices or revenues that may be recovered by Chorus for a regulatory period, in accordance with s 195, together with the quality standards that apply to Chorus;
 - 9.16.2 must implement a wash-up mechanism for the over- or under-recovery of revenue, in accordance with s 196;
 - 9.16.3 may smooth the revenue cap over 2 or more regulatory periods, in accordance with s 197.
- 9.17 Section 195 of the Act sets out the following:

[...] the Commission must, in the price-quality paths for each regulatory period that starts before the reset date,—

- (a) specify the maximum revenues that may be recovered by a regulated fibre service provider; and
- (b) not specify the maximum price or prices that may be charged by a regulated fibre service provider.

9.18 Section 196 sets out the following:

- (1) This section applies when the Commission specifies, in the price-quality paths for each regulatory period that starts before the reset date (except the first regulatory period), the maximum revenues that may be recovered by a regulated fibre service.
- (2) The Commission must, in calculating the maximum revenues, apply a wash-up mechanism that provides for any over-recovery or under-recovery of revenue by the regulated fibre service provider during the previous regulatory period to be applied in a manner that is equivalent in present value terms (as calculated in the manner that the Commission thinks fit) over 1 or more future regulatory periods.
- (3) To avoid doubt, the Commission may, but is not required to, apply the wash-up mechanism referred to in subsection (2) in a price-quality path for a regulatory period that starts on or after the reset date.

9.19 Section 197 sets out the following:

- (1) This section applies when the Commission specifies maximum prices or maximum revenues for the purpose of section 194(2)(b).
- (2) The Commission must calculate the maximum price or revenue in a manner that is equivalent in present value terms (as calculated in the manner that the Commission thinks fit) over 2 or more regulatory periods (for example, by altering depreciation) if, in the Commission's opinion, it is necessary or desirable to do so to minimise any undue financial hardship to a regulated fibre service provider or to minimise price shocks to end-users.

Form of control

- 9.20 Section 195 requires a revenue cap to apply for the first two regulatory periods. That is because s 195 requires us to specify the maximum revenues recovered, and not specify the maximum price or prices that may be charged, for each regulatory period that starts before the 'reset date'. The earliest the reset date could occur is during the course of second regulatory period.
- 9.21 Therefore, in accordance with s 195, our final decision is to specify and define maximum revenues in the form of a revenue cap. We consider that the process and timing for determining the form of control in future regulatory periods should not be covered in the RPR IM. This decision remains unchanged from our draft decision.

Total FFLAS revenue

- 9.22 Our final decision is that total FFLAS revenue is defined in nominal terms, exclusive of GST, and after accounting for discounts and rebates in accordance with GAAP. This is a change from the draft decision to clarify the application of GAAP to customer discounts and rebates.
- 9.23 Consistent with GAAP, customer discounts and rebates are accounted for by deducting those amounts from revenues. Customer rebates and discounts can be subtracted from revenues only when they are not treated as customer acquisition or retention costs .

Allowable revenue, wash-ups, revenue smoothing and treatment of inflation

- 9.24 Under the revenue cap, in each year of the regulatory period, total FFLAS revenue recovered by Chorus must not exceed its allowable revenue. Our final decision is that allowable revenue will comprise building blocks revenue, pass-through costs, and a wash-up amount.
- 9.25 The main reason for specifying only these components of allowable revenues in the RPR IM is that we see building blocks revenue, pass-through costs, and the wash-up amount as providing for all necessary elements of maximum revenues.
- 9.26 Allowable revenue will be set consistent with a BBM approach, as discussed in Chapter 2. The specific building blocks that will be included in our application of the BBM methodology under Part 6 will be decided as part of making our PQ determinations. In setting allowable revenues we will include pass-through costs in accordance with the RPR IM, as discussed from paragraph 9.47 below. The way we determine Chorus' allowable revenues, and the exact make-up of building blocks revenue and wash-ups, may change between each regulatory period as circumstances change and our approach to PQ regulation matures.
- 9.27 In setting allowable revenues, we may also choose to apply smoothing. We would generally expect to assess the need for revenue smoothing under s 197 as part of the PQ determination process and would ensure we account for the impacts of smoothing within the ID requirements. In doing this, we would apply the criteria set out in s 197 (ie, to minimise undue financial hardship to a regulated provider or to minimise price shocks to FFLAS end-users). We note that it is common practice in Part 4 to smooth revenue caps within a single regulatory period, and we consider that we may do so under Part 6 as well.

- 9.28 Revenue smoothing within or between periods can be accommodated within the Commission's calculation of allowable revenues; for example, via altered depreciation,¹⁴³³ via a separate building block, and/or via the wash-up amount.
- 9.29 Our final decision is that wash-ups, revenue smoothing and inflation are not matters that will be included in the RPR IM. We are not required to address these matters in the RPR IM under s 176(1)(c) of the Act and we consider that the design of these mechanisms is best considered in the context of overall decisions on the allocation of risk and incentives under PQ paths, especially for RP1.
- 9.30 We consider that our approach to the specification and definition of prices, and to wash-ups, revenue smoothing and inflation provides an appropriate balance between certainty and flexibility. The specification of price final decision provides sufficient certainty (as required by s 174), and contains sufficient detail so that Chorus will be reasonably able to estimate how it will be affected by the IM (as required by s 176(2)(a)). It sets out how Chorus' revenue is defined (total FFLAS revenue) and what comprises allowable revenue (building blocks revenue, pass-through costs, wash-ups).
- 9.31 In our view, the approach to calculating wash-ups and revenue smoothing required under ss 196 and 197 of the Act should be addressed as part of making our PQ determination. This is in contrast to "locking in" our approach in the IMs.
- 9.32 Factors we need to account for within the wash-up mechanism may change period-to-period. The need and form of any wash-up mechanism is likely to vary over time, as the over-recovery and under-recovery of revenues of the regulated provider varies. We may also include other wash-ups in a PQ determination, rather than just a s 196 wash-up. Including details of how we will approach wash-ups, such as the relationship between a wash-up and inflation, in PQ regulation rather than in the IMs, allows for more flexibility, which we consider appropriate given the dynamic nature of telecommunications markets and FFLAS in particular.
- 9.33 Similarly, the need and form of any revenue/price smoothing is also likely to vary over time, depending on our assessment of potential financial hardship to regulated providers and price shocks to end-users.

Submitters' views on the specification and definition of prices

- 9.34 No submitters disagreed with our overall approach to specifying allowable revenues – ie, that they will comprise building blocks revenue, pass-through costs and a wash-

¹⁴³³ See Commerce Commission "Fibre input methodologies: Draft decision – reasons paper" (19 November 2019), paragraph 3.1352.

up amount. For this reason, our overall decision on the specification of price remains largely unchanged.

- 9.35 We received several submissions relating to pass-through costs (see discussion of pass-through costs from paragraph 9.47). We also received several submissions on the form of control, definition of total FFLAS revenue wash-ups, revenue smoothing, and the treatment of inflation. The following paragraphs summarise and respond to these submissions.

Submitters' views on the form of control

- 9.36 In its submission on our draft decision, 2degrees argued that we should specify the form of control beyond RP1 in the IMs.¹⁴³⁴ We do not agree with 2degrees' reasoning as to why the RPR IM should specify something which the Act already covers.
- 9.37 Vocus suggested that the RPR IM should include "the flexibility to review whether a revenue cap should apply for the 2nd and subsequent regulatory periods".¹⁴³⁵ Our view is that the Act already empowers us to consider the form of control for the third regulatory period and beyond.

Submitters' views on the definition of total FFLAS revenue

- 9.38 Since publishing our draft decision, we have changed the definition of total FFLAS revenue. As set out in our further consultation paper, this change arose following submissions from Chorus on our draft decision recommending that we clarify our intention to apply GAAP treatment to building blocks revenue.¹⁴³⁶ This change is reflected in the definition of "total FFLAS revenue":¹⁴³⁷

means all revenue derived by a regulated provider from the providing of PQ FFLAS:

- (a) in nominal terms, excluding GST; and
- (b) subtracting discounts and rebates taken up by customers, adjusted in accordance with GAAP

¹⁴³⁴ 2 degrees "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 3.

¹⁴³⁵ Vocus "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 4.

¹⁴³⁶ See Commerce Commission "Fibre input methodologies – Further consultation draft – Reasons paper" (23 July 200), page 160.

¹⁴³⁷ Fibre Input Methodologies Determination 2020 (13 October 2020), clause 1.1.4.

Submitters' views on wash-up mechanism

- 9.39 Submissions in favour of including more details of the wash-up mechanism in the RPR IM made the following arguments.
- 9.39.1 Not including wash-up principles in the IM reduces certainty to the detriment of FCM,¹⁴³⁸ which would disincentivise “investment and innovation in the long-term interests of consumers”.¹⁴³⁹
 - 9.39.2 The wash-up mechanism should be included in the RPR IM for consistency with Part 4, and because “...it is not in the long-term interests of end-users for Chorus to have an “unconstrained” wash-up mechanism.”¹⁴⁴⁰
 - 9.39.3 Some submitters were concerned that “key decisions relating to the allocation of risk between LFCs and consumers (such as the wash-up) have become disconnected from specification of LFC return”.¹⁴⁴¹
- 9.40 Because s 196 explicitly requires that the Commission must, in calculating maximum revenues, apply a wash-up mechanism that provides for any over- or under-recovery of revenue, our view is that there is no need to repeat that statutory provision as part of the RPR IM. In response to Chorus’ concerns about FCM and allocation of risk, we intend to apply these economic principles when we make our decisions on PQ regulation, to the extent we consider that their application will best give effect to the purposes in s 166(2).
- 9.41 In its submission on our further consultation paper, Chorus submitted that the wash-up mechanism should provide for a true-up of the initial RAB to reflect actual values as of 1 January 2022.¹⁴⁴² We wish to clarify that we intend recognising in the wash-amount the impact any ‘true up’ of the initial RAB value (reflecting any difference between the actual and forecast initial RAB value) has on revenue.

¹⁴³⁸ Chorus “Submission on Fibre input methodologies – Regulatory processes and rules draft decision” (3 June 2020), pages 11-12.

¹⁴³⁹ Chorus “Cross-submission on Fibre input methodologies – Regulatory processes and rules draft decision” (23 June 2020), page 3.

¹⁴⁴⁰ Vocus “Cross-submission on Fibre input methodologies – Regulatory processes and rules draft decision” (23 June 2020), para 2.

¹⁴⁴¹ Spark “Cross-submission on Fibre input methodologies – Regulatory processes and rules draft decision” (23 June 2020), page 1.

¹⁴⁴² Chorus “Submission on Fibre IMs further consultation package” (14 August 2020), para 43.

Submitters' views on revenue smoothing

- 9.42 In its submission on our draft decision, Chorus argued that the RPR IM should provide for intra- and inter-period revenue smoothing to help ease price shocks.¹⁴⁴³ It suggested we add the following text to the definition of "building blocks revenue" in the determination: "...includes a component or components that give effect to the smoothing of revenue under s 197 of the Act and within a regulatory period where the methodology for revenue smoothing is to be determined during the PQ determination."¹⁴⁴⁴
- 9.43 In response to Chorus' submission, we wish to clarify that we consider revenue smoothing may also be undertaken within a regulatory period, and that this does not need to be made explicit in the RPR IM. The approach for revenue smoothing between regulatory periods in accordance with s 197, and any revenue smoothing within a regulatory period, will be determined as part of our decisions in making a PQ determination. As explained above from paragraph 9.27, our final decision is not to go into any detail on revenue smoothing in the RPR IM determination.

Submitters' views on treatment of inflation

- 9.44 In its submission on our draft decision, Vector requested we consider the impact a persistent trend to over-estimating inflation has on certainty. It recommended we consider the risk this poses to certainty and the impact on regulated providers and end-users, to avoid suppliers having to "adjust prices annually at rates much less than assumed in the Commission's *ex-ante forecast*".¹⁴⁴⁵
- 9.45 Vector suggested that "[t]he wash-up mechanism proposed for Chorus and LFCs appears to have the benefit of limiting the extent to which inflation forecast error for price inflation affects supplier revenue".¹⁴⁴⁶
- 9.46 The question of inflation forecasting risk for the revenue path will need to be addressed when setting the PQ path. We will set out our approach to this issue when setting the revenue path in a PQ determination.

¹⁴⁴³ Chorus "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 7.

¹⁴⁴⁴ Chorus "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 13.

¹⁴⁴⁵ Vector "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 2.

¹⁴⁴⁶ Vector "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 1.

Final decisions: pass-through costs

- 9.47 Our final decision is to include telecommunication levies, local authority rates, and fixed dispute resolution scheme fixed costs as pass-through costs, as they are costs that are appropriately borne by end-users and are outside the control of regulated providers. We are not including a separate recoverable costs category. This section discusses:
- 9.47.1 the framework we have applied in determining what to include as pass-through costs;
 - 9.47.2 our reasons for including telecommunications regulatory levies as pass-through costs;
 - 9.47.3 our reasons for changing our decision to now include local authority rates and dispute resolution scheme membership fees;
 - 9.47.4 our reasons for applying cost allocation rules to pass-through costs; and
 - 9.47.5 our reasons for not including a separate recoverable cost category, and for not including audit-verifier and self-insurance costs as pass-through costs.

Explanation of pass-through costs

- 9.48 Prices or revenues are expected to reflect the building blocks efficient costs calculated on an *ex ante* basis in respect of Chorus' provision of regulated FFLAS. Section 176(1)(c)(i) of the Act provides, however, that the RPR IM must include rules for identifying costs that can be directly passed through to prices or revenues.
- 9.49 To assess which costs should qualify as pass-through costs, we apply three criteria:
- 9.49.1 it must be appropriate that end-users bear the cost;
 - 9.49.2 the regulated provider must have almost no control over the cost (whether to incur it and the amount incurred); and
 - 9.49.3 the driver of the cost must be foreseeable when the IMs are determined.¹⁴⁴⁷
- 9.50 Our view is that the costs which should be allowed as pass-through costs to end-users are those costs that a provider in a workably competitive market might be expected to pass through to prices directly. Such costs include those which are faced by some or all of its competitors, which providers have little or no control over, or if

¹⁴⁴⁷ PQ path reopeners provide us with the ability to respond to costs that are beyond the control of a regulated provider, but that cannot be foreseen. This is discussed below from paragraph 9.73.

it is difficult for suppliers to manage the risk associated with a particular cost. If regulated providers could pass through all costs incurred in providing FFLAS, providers would have little or no incentive to minimise those costs and improve efficiency.

Final decision: applying cost allocation to pass-through costs

- 9.51 Our final decision is to apply cost allocation rules to pass-through costs. This change was made in response to submissions on our draft decision in favour of applying cost allocation to pass-through costs, citing the inappropriateness of allowing levy costs faced by Chorus and LFCs in respect of non-FFLAS services to be included in regulated FFLAS costs and revenues.¹⁴⁴⁸

Final decision: telecommunications levies

- 9.52 Consistent with our draft decision, we are including telecommunications levies as pass-through costs.¹⁴⁴⁹ Telecommunications levies include levies made under sections 11 or 12, such as the telecommunications regulatory levy (TRL) and the telecommunications development levy (TDL), as determined by the Commission under sections 87 and 88.
- 9.53 Our decision remains unchanged from the draft decision. Telecommunications levies are outside the control of regulated providers and are appropriately borne by end-users. Our draft decision was supported in submissions by Chorus, Enable and Ultrafast, and Northpower.¹⁴⁵⁰
- 9.54 In addition, our decision remains that levies incurred prior to implementation date will be treated as operating expenditure for accounting purposes. Therefore, they will be included in the calculation of the initial financial loss asset under s 177.

Final decision: local authority rates and dispute resolution scheme costs

- 9.55 Our final decision is to include local authority rates and dispute resolution scheme fees as pass-through costs. As explained in the further consultation reasons paper, we have adjusted the wording in the determination to apply to a “cost payable”

¹⁴⁴⁸ 2Degrees “Submission on Fibre input methodologies – Regulatory processes and rules draft decision” (3 June 2020), page 3; Spark “Submission on Fibre input methodologies – Regulatory processes and rules draft decision” (3 June 2020), page 1; and Vocus “Submission on Fibre input methodologies – Regulatory processes and rules draft decision” (3 June 2020), pages 5-6.

¹⁴⁴⁹ See Commerce Commission “[Draft] Fibre input methodologies – Regulatory processes and rules draft decision – Reasons paper (6 April 2020), para 50.

¹⁴⁵⁰ Chorus “Submission on Fibre input methodologies – Regulatory processes and rules draft decision” (3 June 2020); Enable and Ultrafast “Submission on Fibre input methodologies – Regulatory processes and rules draft decision” (3 June 2020); Northpower “Submission on Fibre input methodologies – Regulatory processes and rules draft decision” (3 June 2020).

rather than “a levy payable” and added the following text in relation to rates and dispute resolution schemes:¹⁴⁵¹

- 9.56 [...] rates on fibre assets paid or payable by a regulated provider to a local authority under the Local Government (Rating) Act 2002; and a fixed membership fee relating to, or a fixed amount payable as a member of: Utilities Disputes Limited’s dispute resolution scheme; the Telecommunications Dispute Resolution Scheme; and any other dispute resolution scheme specified in a PQ determination. It is worth emphasising that we have included the words “fixed membership fee” and “fixed amount payable” in relation to membership in dispute resolution schemes. We consider the variable costs associated with individual disputes overseen by dispute resolution schemes should not be included as pass-through costs. To include these costs could create a perverse incentive which is at odds with the interests of FFLAS end-users because regulated providers would have reduced incentives to avoid or resolve disputes if they were able to pass these costs directly on to end-users.

Submitters’ views on local authority rates and dispute resolution scheme costs

- 9.57 Our draft decision was not to include the costs of local authority rates and dispute resolution schemes or industry forums as pass-through costs. This was because we considered regulated providers had a degree of control over these costs, and so should be subject to incentives to ensure their participation is efficient and that the schemes are run efficiently. Our view in the draft decision was that these costs could instead be considered as part of setting *ex ante* operating cost allowances under the BBM approach.
- 9.58 In the RPR draft decision reasons paper, our analysis was that rates obligations may be affected by the decisions to rent rather than own property, or where to locate buildings or other installations. We considered regulated providers should face an incentive to control the whole cost of any property, including rates.¹⁴⁵²
- 9.59 In submissions on our draft decision, submitters largely disagreed with our draft decision for the following reasons.

¹⁴⁵¹ Fibre Input Methodologies Determination 2020 (13 October 2020), clause 3.1.2.

¹⁴⁵² See Commerce Commission “[Draft] Fibre input methodologies – Regulatory processes and rules draft decision – Reasons paper” (6 April 2020), paras 61-62.

- 9.59.1 The lack of control regulated providers has over these costs means they should be included as pass-through costs.¹⁴⁵³
- 9.59.2 In commercial leases, rates are incurred by the property tenant, irrespective of ownership, and regulated providers cannot influence local bodies' decisions to change rates.¹⁴⁵⁴ Rates are also difficult to forecast.¹⁴⁵⁵
- 9.59.3 Not including dispute resolution scheme costs in pass-through costs will reduce incentives to participate in these schemes, "which is inconsistent with the long-term interests of users".¹⁴⁵⁶ It is also important to take into account "the nature of this service and its impact on suppliers".¹⁴⁵⁷

Rationale for our final decision: local authority rates and dispute resolution scheme costs

9.60 Applying the decision-making framework set out in paragraph 9.49, we consider our final decision on the treatment of local authority rates and dispute resolution scheme costs is appropriate because:

- 9.60.1 we agree with points raised in submissions about the degree of control regulated providers have over these costs, and that uncertainty about the amount of these costs make them difficult to forecast;
- 9.60.2 we also agree with the arguments relating to the nature of commercial leases, contrary to our original thinking on the rent/buy trade-off; and
- 9.60.3 for dispute resolution schemes, it is in the best interests of end-users that fibre providers are not disincentivised from participating in these schemes, as they may be if they were not able to pass-through membership fees.

¹⁴⁵³ Enable and Ultrafast "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 4; Chorus "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 10; Vector "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), pages 2-3; Chorus "Cross-submission on Fibre input methodologies – Regulatory processes and rules draft decision" (23 June 2020), page 2.

¹⁴⁵⁴ Enable and Ultrafast "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 4; Enable and UFF "Cross-submission on Fibre input methodologies – Regulatory processes and rules draft decision" (23 June 2020), page 3; ENA "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 2.

¹⁴⁵⁵ Enable and Ultrafast "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 4.

¹⁴⁵⁶ Enable and Ultrafast "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 4.

¹⁴⁵⁷ Vector "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), pages 2-3.

Submitters' views on applying cost allocation to pass-through costs

9.61 Submissions on this issue were as follows.

- 9.61.1 Vocus submitted that the TDL and TRL "are allocated amongst liable persons on the basis of qualifying revenue, and this same method should be used to allocate the levies between Chorus' telecommunications businesses", and that we should account for shared costs and costs that cannot be wholly attributable to FFLAS.¹⁴⁵⁸
- 9.61.2 Spark submitted "...it would be inappropriate to include regulatory levies for services not regulated by Part 6 in the BBM", and that sometimes regulated providers source inputs "...from other liable parties which are shared between regulated fibre and other businesses and this would need to be deducted from gross revenues to identify liable revenues".¹⁴⁵⁹
- 9.61.3 Spark also stated in its cross-submission that in deciding how to allocate pass-through costs, we should account for shared costs in that levies are shared between fibre and other services.¹⁴⁶⁰
- 9.61.4 2degrees also argued that if "levies are passed through wholesale without first identifying which aspects relate to FFLAS, there will be a risk of double recovery for portions that relate to other services, such as copper."¹⁴⁶¹

Rationale for our final decision: apply cost allocation to pass-through costs

- 9.62 We consider that our final decision to apply cost allocation to pass-through costs is appropriate because pass-through costs are often shared between regulated and other business activities. It allows FFLAS end-users to benefit from efficiencies realised from shared costs (per s 162(b)) and protects them from bearing costs not properly associated with the provision of FFLAS.¹⁴⁶²
- 9.63 For example, the TDL and TRL are allocated amongst liable persons based on qualifying revenue. As such, there may be circumstances in which cost allocation rules should apply. We consider it is appropriate for the cost of levies (and other

¹⁴⁵⁸ Chorus "Cross-submission on Fibre input methodologies – Regulatory processes and rules draft decision" (23 June 2020), page 2.

¹⁴⁵⁹ Spark "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 1.

¹⁴⁶⁰ Spark "Cross-submission on Fibre input methodologies – Regulatory processes and rules draft decision" (23 June 2020), page 1.

¹⁴⁶¹ 2degrees "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 3.

¹⁴⁶² See the cost allocation IM chapter for more information

pass-through costs) which relate to provision of services other than FFLAS to be borne by end-users of copper and other services, rather than by FFLAS end-users.

Final decision: recoverable costs category

- 9.64 Our final decision remains unchanged from draft decision, in that we will not include ‘recoverable cost’ as a category in the RPR IM requiring, for instance, an approval process for passing some or all costs through to prices or revenues.
- 9.65 In the Part 4 IMs we include the category of “recoverable costs” to also provide allowances for “post scheme adjustments” we administer, such as incentive payments or rewards. Another key difference with recoverable costs (compared to pass-through costs) is that a number of them are subject to our approval. However, our view remains that no such category is necessary in the fibre IMs as we have not included any costs that may be passed through to end-users that are subject to scrutiny or approval, and there are no incentive mechanisms that involve explicit incentive amounts needing to be passed through to (or recovered from) end-users.

Submitters’ views on recoverable costs category

- 9.66 In our RPR draft decision, we did not propose including a separate recoverable costs category (as provided for in the Part 4 IMs) in the RPR IM.¹⁴⁶³
- 9.67 We received the following submissions on our draft decision on recoverable costs.
 - 9.67.1 Chorus submitted that audit and verifier costs should be treated as recoverable costs because they are largely outside its control and challenging to forecast.
 - 9.67.2 Chorus went on to argue that it does not have a choice as to whether or not it incurs audit/verifier costs but can somewhat control these costs (through a tender process).¹⁴⁶⁴ Chorus also submitted that it “does not have a captive insurer and it is not clear how self-insurance costs... will be treated under PQR”.¹⁴⁶⁵

¹⁴⁶³ See Commerce Commission “[Draft] Fibre input methodologies – Regulatory processes and rules draft decision – Reasons paper” (6 April 2020), para 63.

¹⁴⁶⁴ Chorus “Submission on Fibre input methodologies – Regulatory processes and rules draft decision” (3 June 2020), para 33.2.

¹⁴⁶⁵ Chorus “Submission on Fibre input methodologies – Regulatory processes and rules draft decision” (3 June 2020), para 33.3.

- 9.67.3 Enable and Ultrafast argued that audit and verification costs are incurred “as a direct result of the regulatory framework”.¹⁴⁶⁶
- 9.68 In addition, Chorus submitted that we should include “should allow for future unforeseen costs to be passed through when they arise”.¹⁴⁶⁷ We disagree as such a category would be too open-ended, which is inconsistent with our other pass-through cost categories which are clearly defined.

Rationale for our final decision: recoverable costs category

- 9.69 Our final decision is that a recoverable cost category is not needed to implement our final decision since the only categories of pass-through costs we propose are levies, rates and disputes resolution scheme membership fees; none of which require a scrutiny process.
- 9.70 We disagree with Chorus’ submissions regarding the need for a recoverable cost category. In terms of costs which the regulated provider has minimal control over, the definition of pass-through costs covers these adequately. We consider it will be simpler to apply the RPR IM to PQ regulation if we have a single pass-through cost category which sets any necessary conditions.
- 9.71 In addition, we will not allow for audit, verifier or self-insurance costs to be passed through to end-users by being recovered through prices or revenues. This is because we do not consider these costs should be passed on to end-users without scrutiny (regardless of whether these are classified as pass-through or recoverable costs). Our final decision is not to include costs associated with audit, verification and self-insurance for the following reasons.
- 9.71.1 For businesses like Chorus (or Transpower, which is subject to an IPP), forecast audit and verification costs can be included in the base opex allowance.
- 9.71.2 If the cost of self-insurance could be passed through to or recovered from prices without scrutiny, there is a risk that Chorus would not be incentivised to manage risk efficiently. For example, where self-insurance is a pass-through cost, but insurance obtained through a third party is not, a regulated provider may have an incentive to prefer self-insurance regardless of whether it is more cost efficient. However, scrutiny of

¹⁴⁶⁶ Enable and Ultrafast “Cross-submission on Fibre input methodologies – Regulatory processes and rules draft decision” (23 June 2020), page 3.

¹⁴⁶⁷ Chorus “Submission on Fibre input methodologies – Regulatory processes and rules draft decision” (3 June 2020), para 24.

Chorus' self-insurance is already provided for when we scrutinise base opex.

- 9.71.3 Audit costs are included as pass-through costs for EDBs and GDBs in a CPP under Part 4 because not all of these businesses apply for a CPP, so those additional regulatory costs could create a disincentive to applying for a CPP. This reason is not relevant in the Part 6 context.
- 9.72 As stated above in relation to Chorus' submission, our final decision is not to provide for "future unforeseen costs" as pass-through or recoverable costs. Our view is that this is too open a concept and would undermine the certainty of the RPR IM (as required by s 174); and we would not be able to set out how we intended to apply the IM to FFLAS, (as required by s 176(2)(b)). Also, reopeners provide us with the ability to respond to certain unforeseeable costs that are beyond the control of a regulated provider.

Final decisions: reconsideration of a price-quality path

- 9.73 Our final decision is to provide for the reconsideration of the *ex ante* PQ path for the following circumstances:
 - 9.73.1 catastrophic events;
 - 9.73.2 change events;
 - 9.73.3 GAAP changes;
 - 9.73.4 error events; and
 - 9.73.5 major transactions.
- 9.74 We consider the benefits of being able to reconsider the PQ path for these circumstances are likely to outweigh the expected costs, including the costs arising from any increased uncertainty. We also consider that the reconsideration for these events is consistent with the purposes of Part 6, including the economic incentives applying to regulated providers under PQ regulation. We have discussed these reopener events in the following paragraphs, and have also discussed:
 - 9.74.1 the thresholds for reopener events, such as a quality standard threshold; and
 - 9.74.2 changes to the reopener provisions to clarify our policy intent and make them easier for us to apply.

Explanation of reconsideration circumstances

- 9.75 Under PQ regulation, the Commission sets maximum prices or revenues for a regulated provider for a regulatory period and specifies the quality standards that apply. Prices or revenues are set on an *ex ante* basis using cost forecasts and other estimates and assumptions. Compliance with these settings is then assessed on an *ex post* basis against actual prices/revenues and quality outcomes.¹⁴⁶⁸
- 9.76 The setting of an *ex ante* PQ path implicitly involves the allocation of risk between regulated providers, FFLAS end-users, and other parties (such as RSPs). It also affects the incentives for regulated providers to act efficiently. For instance, regulated providers are incentivised to innovate and act efficiently because some or all of the benefits (such as cost savings) achieved within a regulatory period can be retained by the regulated provider. Reconsideration events also work in conjunction with other processes and rules (such as provision for pass-through costs) and other input methodologies (such as capex approval mechanisms) to address uncertainty inherent in setting *ex ante* PQ paths.
- 9.77 Reconsidering (or reopening) a PQ path after it has been set to account for new events or information that differ from the forecasts and assumptions originally used can change the allocation of risk and alter incentives faced by providers.¹⁴⁶⁹ Reopeners most directly affect incentives for providers to invest (s 162(a)), to improve efficiency (s 162(b)), and the ability to extract excessive profits (162(d)).
- 9.78 Reconsideration can also indirectly affect competition in telecommunications markets. For example, a catastrophic event may destroy assets that support competition in a market (eg, DFAS links to cell towers). Failure to reopen the path to allow for the required additional expenditure to rebuild those assets could:
- 9.78.1 delay investment in replacement assets (s 162(a));
 - 9.78.2 adversely affect quality for fibre (s 162(b));
 - 9.78.3 dissuade future investment in assets (s 162(a)); and
 - 9.78.4 negatively impact competition in mobile markets (contrary to the requirement in s 166(2)(b)).

¹⁴⁶⁸ For an overview of PQ regulation see Commerce Commission “Fibre input methodologies – Draft decision paper” (19 November 2019), paras 2.217-2.223.

¹⁴⁶⁹ The short three-year initial regulatory period is likely, all other things being equal, to mean that the need for reopeners is less than, say, under a five-year regulatory period. This is because the probability and consequences of getting forecasts that inform the PQ path for the first regulatory period wrong is lower.

- 9.79 Reconsidering a PQ path could be a costly and time-consuming task. Leaving the criteria too broad could detract from the certainty that the IMs are intended to provide, as set out in s 174, and may give rise to moral hazard.¹⁴⁷⁰ We have applied the economic framework described in Chapter 2 in considering whether providing for a reconsideration event would best give effect to the purposes of Part 6 described in s 166(2) of the Act. In practice, we consider that a balance needs to be struck between:
- 9.79.1 the need to ensure that a PQ path can be reconsidered consistent with the long-term benefit of end-users if an event is so material in its effects that the existing path is no longer appropriate in terms of the purposes of Part 6; and
 - 9.79.2 the need to provide certainty and appropriately limit the circumstances or events under which a path may be reconsidered.
- 9.80 To maximise incentives for regulated providers to behave efficiently, the rules on when a PQ path may be reconsidered should, where possible, be clearly specified. Where the rules are not clear, regulated providers may be concerned that significant efficiency gains might be viewed as excessive profits and result in pressure for the Commission to reduce allowable prices/revenues.
- 9.81 In addition, a regulated provider may not take appropriate action to mitigate risks that it is best placed to manage, as it may assume that FFLAS end-users will be required to compensate it through increased prices/revenues or by accepting lower quality should the risk eventuate.¹⁴⁷¹
- 9.82 In our view, PQ paths should only be reconsidered in circumstances where the benefits to end-users and regulated providers of reconsidering the path are expected to outweigh the likely cost (including both immediate costs of reconsidering the path and longer-term costs resulting from the reset path).
- 9.83 The benefits and costs should be thought about in terms of promoting the purposes of Part 6. Reconsideration is typically reserved for exceptional circumstances that are unforeseen or that have consequences that are difficult to estimate.
- 9.84 We consider that characteristics of FFLAS are similar enough in material respects to the context of services regulated under Part 4 for similar reopeners to be included:

¹⁴⁷⁰ Commerce Commission “Input methodologies (electricity distribution and gas pipeline services) – reasons paper” (22 December 2010), para 8.4.8.

¹⁴⁷¹ Commerce Commission “Input methodologies (electricity distribution and gas pipeline services) – reasons paper” (22 December 2010), para 8.4.1.

- 9.84.1 fibre is essential infrastructure whose continued provision at a given level of service quality is of significant benefit to end-users; and
- 9.84.2 PQ-regulated providers are restricted by price or revenue caps in their ability to pass on unforeseeable cost increases in continuing to deliver the same service.

Submitters' views on reconsideration circumstances

- 9.85 No submitter disagreed that reconsideration of a PQ path should be provided for catastrophic events, change events, GAAP changes, error events, or major transactions. However, submitters made various suggestions as to how the definition of the relevant events could be modified. For example, submitters suggested the removal of the “knowingly” limb of the false and misleading information reopeners provisions. We discuss these submissions in more detail below.
- 9.86 In addition, 2degrees made the following point regarding certainty and reopeners in its submission:

[...] circumstances in which a price path can be reopened should be appropriately limited. If the criteria for allowing a reopeners is too broad, the certainty provided by the IMs will be undermined.

[...] if the scope to seek a reopeners is too wide, Chorus may not take steps to reduce risks that it is best placed to manage and will instead be incentivised to seek reopeners, shifting those risks onto consumers by increasing prices and lowering quality standards.

Rationale for our final decision: catastrophic event

- 9.87 Our final decision is to include a catastrophic event reopeners to cover situations where an unforeseen event affects a regulated provider to such an extent that the PQ path should be reconsidered. As set out in our IM determination, we have defined the ‘catastrophic event’ reopeners as:¹⁴⁷²

 - 9.87.1 an event, or credible threat of an event;
 - 9.87.2 that is beyond the reasonable control of the regulated provider;
 - 9.87.3 that could not have reasonably been foreseen when capex proposals were made for the regulatory period; and
 - 9.87.4 that results in a regulated provider failing to meet its quality standards or imposes a cost that is at least 1% of allowable revenues.

¹⁴⁷² Fibre Input Methodologies Determination 2020 (13 October 2020), clause 3.9.3.

- 9.88 Following submissions on our RPR IM topic paper on the need for the catastrophic event reopeners to cover the threat of a cyber security attack,¹⁴⁷³ our draft decision was to extend the definition to apply to situations where costs are incurred in response to a credible threat and “to respond to, mitigate or prevent” adverse consequences. We considered this amendment necessary to allow for a change in the prudent level of expenditure to deal urgently with a specific unforeseen risk with catastrophic implications, such as cyber-security threats.
- 9.89 In our view, this amendment is appropriate because it provides additional flexibility in the range of urgent responses to catastrophic risks that could qualify for a reopeners for the long-term benefit of end-users. Specifically, allowing for unforeseen threats with catastrophic impacts to be responded to within the regulatory period encourages firms to pursue efficient and least-cost solutions to avoid breaching quality standards.
- 9.90 A regulated provider does not necessarily need to wait for those adverse consequences to materialise, and expenditure in response to the threat of an event to “prevent” or “mitigate” the possible consequences may instead provide the optimal response.
- 9.91 To allow for these actions, urgent expenditure incurred before an application for a reopeners is made should be eligible for consideration as part of the response to the event if the Commission determines that the PQ path should be amended.
- 9.92 In response to our draft decision on catastrophic event reopeners, Chorus submitted:¹⁴⁷⁴
- ...we support the proposed flexibility around cyber-security threats that has been included in the definition of catastrophic events. [...] It is essential that we are able to respond appropriately and rapidly to credible and specific threats and we consider there is sufficient flexibility in the proposed IM to enable this.
- 9.93 However, in clarifying the wording of the reopeners provisions we have decided it makes sense not only to factor in the cost of mitigating or preventing a cyber security event, or threat of such an event, but have gone one step further in including “cyber security incident” as an example of what may constitute a catastrophic event. We have also included other examples of what may be considered a catastrophic event, including an earthquake, flood, explosion, pandemic, or act of terrorism.

¹⁴⁷³ Chorus “Fibre Regulatory Processes and Rules submission” (10 September 2019), page 11.

¹⁴⁷⁴ Chorus “Submission on Fibre input methodologies – Regulatory processes and rules draft decision” (3 June 2020), page 15.

Rationale for our final decision: change event

- 9.94 Our final decision is to include a reopener event for changes to a regulatory requirement that applies to a regulated provider arising from “new or amended legislation” or “judicial clarification of the interpretation of legislation”. The change event must affect a regulated provider’s costs or ability to meet its quality standards.¹⁴⁷⁵
- 9.95 Our draft decision was to include a change event reopener, but with the following differences in the requirements.
- 9.95.1 Change event was defined in the draft decision as a change in a “legislative or regulatory requirement”, as opposed to just a “regulatory requirement”. We have made this change because “regulatory requirement” encompasses legislative changes, as well as changes in regulation. This includes changes to primary or secondary legislation, as well as changes to other regulatory instruments that impose legal requirements on regulated providers.
 - 9.95.2 The change event definition did not explicitly include judicial clarification of the law. We wish to make this clear as judicial decisions on the interpretation of the law could impact, for example, the costs faced by a regulated provider.
- 9.96 We did not receive any specific submissions on the change event reopeners. Our decision remains unchanged from the draft decision, aside from the determination wording changes outlined above which aim to clarify our policy intent.

Rationale for final decision: GAAP changes

- 9.97 As set out in the further consultation determination, we have made some minor changes to restructure and simplify the wording of the definition of GAAP change, and our final decision is to define it as a change.¹⁴⁷⁶
- 9.97.1 in a requirement that applies to a regulated provider under GAAP that results in a change in the recognition or measurement of opex, capex, fibre assets, liabilities or total FFLAS revenue; and
 - 9.97.2 that if the change was in effect when the PQ path was determined, allowable revenues would have differed by at least 1% as a result of a difference in forecasts relied on.

¹⁴⁷⁵ Fibre Input Methodologies Determination 2020 (13 October 2020), clause 3.9.4.

¹⁴⁷⁶ Fibre Input Methodologies Determination 2020 (13 October 2020), clause 3.9.5.

- 9.98 In our draft decisions paper we noted that we often rely on accounting standards and rules set under GAAP where they are consistent with regulatory objectives.¹⁴⁷⁷ Our draft decision was that a change in GAAP standards with a material effect occurring after a PQ path is set can trigger a PQ path reopen. The change must not have been contemplated, implicitly or explicitly, by that PQ path.
- 9.99 The Commission has recent experience with a GAAP change in the Part 4 context. There is a new financial reporting standard for New Zealand equivalent to International Reporting Standard 16 Leases (NZ IFRS 16). In the fibre regulation context, we consider that a GAAP change reopen will allow us to better respond to unforeseen changes to important rules we relied on in setting PQ paths.
- 9.100 We have included a materiality threshold relating to 1% of revenues in the relevant determination clause.¹⁴⁷⁸

Rationale for our final decision: error event

- 9.101 Our final decision is to include a reopen for error events, defined as a "circumstance in which the PQ determination was made or amended based on an error".¹⁴⁷⁹
- 9.102 We consider this decision promotes the purposes of Part 6 as it helps ensure any PQ determination is accurate and reflects the realities faced by regulated providers, whilst promoting certainty by only allowing the PQ path to be reopened in specific exceptional circumstances.
- 9.103 As explained in paragraphs 9.111 to 9.112, we have removed the false and misleading information reopen. Our view remains that there are some circumstances in which the provision of such information should trigger a reopen.
- 9.104 In the definition of error event, we have included the words "...incorrect, false, or misleading information was used in setting the price path or a quality standard".
- 9.105 As set out in our draft decision, an error relating to a quality standard will not constitute an error event unless it is an error in the value of a quality standard (eg, a value used to prescribe a target, band or formula).¹⁴⁸⁰

¹⁴⁷⁷ Commerce Commission "Fibre input methodologies: Draft decision – reasons paper" (19 November 2019), paragraph 3.48.

¹⁴⁷⁸ Fibre Input Methodologies Determination 2020 (13 October 2020), clause 3.9.5.

¹⁴⁷⁹ Fibre Input Methodologies Determination 2020 (13 October 2020), clause 3.9.6.

¹⁴⁸⁰ [Draft - regulatory processes and rules] Fibre Input Methodologies Determination 2020 (2 April 2020), page 110.

- 9.106 In its submission on our draft decision, 2degrees mentioned experience regulating EDBs, and noted that we have had issues with distributors having incentives to inflate forecasts. It submitted that in these types of situations it would be "...more appropriate for the Commission to reopen the price-quality path when the issue is identified, rather than trying to address the matter at the subsequent price reset".¹⁴⁸¹
- 9.107 We disagree with 2degrees' point on the need to reopen a PQ path when forecasts turn out to be erroneous *ex post*. However, we agree that we should be able to reopen a PQ path where forecasts were erroneous *ex ante*, so have included forecast errors in the definition of error event. We have made it clear that a discrepancy between forecast and actual values "will not constitute an error event". This is because we do not consider it would be appropriate for a PQ path to be reconsidered solely because a regulated provider incorrectly forecasts values as this would disincentivise them from undertaking rigorous forecasting processes.
- 9.108 Our view is that the appropriate way to respond to the risk of excessive profits from incorrect expenditure forecasts is via the scrutiny process. This will mean the regulated provider bears the impact of under- and over-forecasting
- 9.109 In submissions on our further consultation decision, 2degrees, Vocus and Vodafone supported our decisions on the error reopener provisions.¹⁴⁸²
- 9.110 We have not included a materiality threshold in the error event reopener. This is because the question of whether a PQ path was set or amended based on an error does not require a threshold. If an error is relatively minor and does not materially impact the determination, we would likely use our discretion and decide not to reopen the PQ path.

Rationale for our final decision: false and misleading information

- 9.111 Our final decision is to remove the reopener for false and misleading information we proposed in our draft decision.¹⁴⁸³ In reaching our final decision, we considered the following issues raised in submissions on our draft decision for this reopener:

¹⁴⁸¹ 2degrees "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 3.

¹⁴⁸² 2degrees "Submission on Fibre IMs further consultation package" (14 August 2020); Vocus "Submission on Fibre IMs further consultation package" (14 August 2020); Vodafone "Submission on Fibre IMs further consultation package" (14 August 2020).

¹⁴⁸³ Commerce Commission "[Draft] Fibre input methodologies – Regulatory processes and rules draft decision – Reasons paper (6 April 2020), page 21.

9.111.1 2Degrees and Vocus submitted that we should remove the "knowingly" provided requirement from the false or misleading information reopener.¹⁴⁸⁴

9.111.2 Vocus also submitted that Chorus should not be able to benefit from providing false or misleading information to the Commission.¹⁴⁸⁵

9.112 Having given more consideration to the reasons for including a false and misleading information reopener, we consider that these situations would be covered by the error event reopeners. Since we have removed the "knowingly" requirement, as suggested by submitters, the error event reopeners can now cover false and misleading information as erroneous information.

Rationale for our final decision: major transactions

9.113 Our final decision is to include a major transaction reopeners, in line with our draft decision. As explained in our RPR draft decision, the major transaction reopeners is modelled on that applying to electricity distribution and gas businesses under Part 4.¹⁴⁸⁶ It allows us to reopen PQ paths, if necessary, to ensure that they remain appropriate where significant changes in assets, rights or obligations are involved.

9.114 If a regulated provider were to dispose of a significant number of assets during a regulatory period, then revenues under the PQ path would appear excessive relative to costs. Conversely, if a regulated provider were to acquire significant assets then it is likely that the PQ path would not allow FCM to be achieved relative to that period. In addition, our decision remains that company amalgamations can constitute a major transaction.¹⁴⁸⁷

9.115 Chorus made the following submission on our draft decision on major transactions: "[w]e also recommend that the IMs should encourage major transactions, as these are likely to enhance efficiency of investment and will therefore be in the long-term

¹⁴⁸⁴ 2degrees "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 2; Vocus "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), pages 4-5.

¹⁴⁸⁵ Vocus "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 5.

¹⁴⁸⁶ Commerce Commission "[Draft] Fibre input methodologies – Regulatory processes and rules draft decision – Reasons paper (6 April 2020), page 94.

¹⁴⁸⁷ "For the purpose of subclause (1), a transaction includes an amalgamation under Part 13 of the Companies Act 1993". See Fibre Input Methodologies Determination 2020 (13 October 2020), clause 3.9.7.

interests of consumers".¹⁴⁸⁸ We agree, and consider our final decision on the major transaction reopener allows for this to happen.

- 9.116 We have not made any significant changes to the major transaction reopener since the RPR draft decision, aside from minor wording changes. For example, we have inserted the words "the regulated provider..." at the beginning of each paragraph to make it clear who is acquiring or disposing of assets. We have also inserted the words "...in the PQ RAB in the disclosure year..." for consistency with the AV IM.
- 9.117 We have not included a revenue- or cost-based threshold for the major transaction reopener, but have included a threshold related to regulated providers' RAB values since a transaction relates more directly to assets than revenue or cost. The threshold relates to "...a value of more than 10% of the sum of a regulated provider's opening RAB values".¹⁴⁸⁹

Rationale for our final decision: reopener thresholds

- 9.118 Several of the reopener events have a materiality level specified which must be met in order for a reconsideration event to be triggered. For instance, the costs of responding to a catastrophic event must be at least 1% of the allowable revenues for the first regulatory year of the PQ determination.¹⁴⁹⁰
- 9.119 We have included materiality thresholds in some reopeners to maintain certainty in accordance with s 174; ie, so we will not reconsider a PQ path as a result of a change that has no significant impact. We consider this is the best way to set out how we intend to apply the IM to FFLAS, as required by 176(2)(b). For this reason, our final decision is to set the following thresholds.
 - 9.119.1 **Revenue- and quality-based thresholds for the catastrophic and change events:** we may reconsider the PQ path if the event imposes costs of at least 1% of revenues or prevents a regulated provider from meeting its quality standards.
 - 9.119.2 **Revenue-based threshold for the GAAP change reopener:** we may reconsider the PQ path if, had the GAAP change been in effect at the time the PQ path was determined, "...the aggregate amount of the maximum revenues... would have differed by at least 1%".

¹⁴⁸⁸ Chorus "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 15.

¹⁴⁸⁹ Fibre Input Methodologies Determination 2020 (13 October 2020), clause 3.9.7.

¹⁴⁹⁰ Fibre Input Methodologies Determination 2020 (13 October 2020), clause 3.9.3.

9.119.3 No materiality threshold for error reopeners: we have removed the words “a material aspect of the forecast values was false or the forecast was misleading” from the error event reopeners, so there is no materiality threshold.¹⁴⁹¹

9.119.4 RAB-based threshold for major transaction reopeners: we may reconsider the PQ path if a regulated provider acquires, disposes of, acquires rights or interests in, or incurs obligations or liabilities related to a fibre asset “...with a value of more than 10% of the sum of a regulated provider’s opening RAB values”.¹⁴⁹²

Submitters’ views on reopeners thresholds

- 9.120 In terms of the percentage value of reopeners thresholds, Enable and Ultrafast submitted “[w]e consider the 1% threshold proposed is reasonable and note that this is consistent with the reconsideration threshold adopted under Part 4 regulation”.¹⁴⁹³
- 9.121 On the issue of reopeners thresholds, Chorus submitted that “...the application of a monetary threshold should be cost-based, as opposed to revenue-based, across reopeners and reconsideration circumstances”. It argued that this is because of the “complex relationship between revenue and underlying costs, such that the revenue impact can vary significantly depending on whether the costs are opex or capex”.¹⁴⁹⁴
- 9.122 Chorus also submitted that its suggested cost-based threshold should apply to the catastrophic event, change event, GAAP change reopeners, “...unless the GAAP changes relate to revenue recognition rules or criteria, rather than costs incurred by the business, in which case the revenue threshold would still be appropriate”.¹⁴⁹⁵
- 9.123 Our view is that it makes little difference whether we set a cost- or revenue-based reopeners threshold. As Chorus noted, there is a complex relationship between revenue and costs, and in any case we would consider this relationship in assessing whether an event meets the reopeners threshold. We consider it is simpler to apply a

¹⁴⁹¹ This was included in Commerce Commission “[Further consultation] Fibre Input Methodologies Determination 2020” (23 July 2020), clause 3.9.6(2)(b). We removed this wording to better reflect the policy intent of this clause.

¹⁴⁹² Fibre Input Methodologies Determination 2020 (13 October 2020), clause 3.9.7.

¹⁴⁹³ Enable and Ultrafast “Submission on Fibre input methodologies – Regulatory processes and rules draft decision” (3 June 2020), para 4.2.

¹⁴⁹⁴ Chorus “Submission on Fibre input methodologies – Regulatory processes and rules draft decision” (3 June 2020), pages 15-16.

¹⁴⁹⁵ Chorus “Submission on Fibre input methodologies – Regulatory processes and rules draft decision” (3 June 2020), para 62.

revenue-based threshold, since we will be reconsidering allowable revenues or quality standards, so it makes sense to assess thresholds on this basis.

- 9.124 On the issue of quality-based reopeners thresholds, Enable and Ultrafast submitted that “an additional threshold is included, specified as the impact on expected quality performance of at least 1% of the quality standard ... for the affected years of the regulatory period”.¹⁴⁹⁶
- 9.125 Our view is that it is more practical to assess whether or not a regulated provider is able to meet its quality standards, rather than assessing the impact on quality standards as a percentage, since there may be subjective elements to quality standards that cannot be easily measured as a percentage.

Rationale for final decisions: application of reconsideration provisions

- 9.126 Our final decision is to restructure and simplify the RPR IM for reconsideration of the PQ path to improve its coherence and ease-of-use. Rather than arising from submissions, these changes relate primarily to how the provisions will be applied in practice.
- 9.127 As explained in our further consultation paper, the drafting changes do not change the policy intent of the reconsideration provisions.¹⁴⁹⁷ We consider this drafting better implements the policy intent of the reopeners provisions. These changes involve:
 - 9.127.1 revising the structure of the reconsideration provisions and key terms used;
 - 9.127.2 changing the time period in which reopeners events may trigger a reopeners;
 - 9.127.3 setting out the information and process requirements that apply; and
 - 9.127.4 revising the factors, the Commission must consider when deciding whether and how to reopen and amend the PQ path.
- 9.128 As explained in paragraphs 9.87 to 9.116, we have also made a series of editorial refinements to the definitions of 'reopeners' events.
- 9.129 As a package, these changes will help better promote the purpose of the IMs. With a clearer set of expectations and considerations, regulated providers and other

¹⁴⁹⁶ Enable and Ultrafast “Submission on Fibre input methodologies – Regulatory processes and rules draft decision” (3 June 2020), page 5.

¹⁴⁹⁷ See Commerce Commission “Fibre input methodologies – Further consultation draft – Reasons paper” (23 July 200), page 140.

interested parties will be able to better predict when the Commission will reconsider and amend the PQ path.

- 9.130 We consider that these changes will promote the certainty required by s 174, since fibre service providers, access seekers, and end-users will have more consistent expectations in relation to the rules, requirements, and processes applying to the reconsideration process.

Structure of the provisions and terminology

- 9.131 In our draft decision, the reconsideration provisions comprised a set of definitions of reopener events. These definitions contained many of the criteria the Commission would consider as part of the reopener process. We also had clauses briefly setting out what we must consider when amending the PQ path after having reopened it. After some consideration, we decided to amend the drafting of these provisions, as explained in our further consultation reasons paper.¹⁴⁹⁸
- 9.132 Our view is that the process that must be followed and what the Commission must consider at each step of the process are different. Clarifying this process and clearly delineating these considerations will help improve certainty for regulated providers, access seekers, and end-users.
- 9.133 The structure of the provisions now reflects the reconsideration process in a logical sequence, comprising the following steps:
- 9.133.1 a 'trigger' stage, where we consider whether a reopener event has occurred;
 - 9.133.2 the definitions of reopeners events; and
 - 9.133.3 an 'amendment' stage, where we consider whether and how to amend the PQ path.

Time period in which reopener events trigger a reopener

- 9.134 We have set out the time period in which reopener events may trigger a reopen, including timing requirements for events across multiple regulatory periods.
- 9.135 In our draft decision, for a reopen event to be considered it had to occur during the regulatory period which is being reconsidered (ie, a reopen event *for* the first regulatory period must occur *during* the first regulatory period). Chorus raised concerns about the fact that costs incurred in a given regulatory period could affect

¹⁴⁹⁸ Commerce Commission "Fibre input methodologies – Further consultation draft – Reasons paper" (23 July 2020), page 86.

subsequent regulatory periods.¹⁴⁹⁹ In response to this, we have amended the wording of the reopener provision to clarify the timing requirements and implications for reopener events across multiple periods.

- 9.136 Reopener events that occur immediately prior to the determination of a PQ path, or during the period between when the PQ path is determined and when it commences, can have a material impact on the appropriateness of that PQ path. However, the Commission will not be able to account for these events when initially determining the PQ path. Providing for reopeners events that happen in the six months prior to the start of a regulatory period removes this arbitrary outcome.

Information and process requirements

- 9.137 We have set out a clear (but flexible) process for the reconsideration process to reduce the cost and complexity of applying the regime in practice. Clause 3.9.2 of the IM determination provides for:¹⁵⁰⁰

- 9.137.1 what a regulated provider must do when it identifies and nominates a reopeners event;
- 9.137.2 what the Commission must do when we receive a reopeners request; and
- 9.137.3 what the Commission must do, if it is satisfied a reopeners event has occurred and that the PQ path should be amended.

- 9.138 2degrees submitted that reopening a PQ path could have implications for RSPs. They gave the example of a situation in which the Commission may set quality standards which could impact RSPs' ability to meet requirements under a retail service quality code, and their ability to deliver the quality of service expected by end-users.¹⁵⁰¹ To mitigate the risk of this happening, we have:

- 9.138.1 included a quality-based threshold so that only quality issues that result in a regulated provider failing to meet its quality standards can trigger a reopeners, rather than minor quality issues; and
- 9.138.2 included notice and consultation requirements so that stakeholders are kept informed throughout the reconsideration process.

¹⁴⁹⁹ Chorus "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 15.

¹⁵⁰⁰ Fibre Input Methodologies Determination 2020 (13 October 2020), clause 3.9.2.

¹⁵⁰¹ 2degrees "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 2.

Considerations and constraints on amending the PQ path

- 9.139 The provisions as set out in the draft decision contained a range of reopener and amendment considerations and constraints, both general ones applicable to all types of reopener events and specific ones applicable to specific types of events, nested within the definitions of those events. To give interested parties greater clarity about how the Commission will make decisions about amending the PQ path, we have collated and expanded the list of matters the Commission must consider, and the constraints on our decision making.
- 9.140 If the Commission is satisfied that a reopener event has occurred, in deciding whether to amend the relevant PQ determination, we must have regard to the following matters:
- 9.140.1 whether it is appropriate to delay any change until the next PQ path reset;
 - 9.140.2 the impact of the reopener event on costs, revenues, and quality outcomes;
 - 9.140.3 whether the event is already provided for within the PQ path;
 - 9.140.4 whether the regulated provider can reprioritise its expenditure to respond to the event.
- 9.141 Some factors relate to regulated provider re-opener requests only, because they rely on information being available by the provider as part of its request.
- 9.142 In its submission on our further consultation decision, Chorus supported the changes to improve the workability of the reopener event process but suggested removing the exclusions to the catastrophic event definition.¹⁵⁰² Instead, it suggested including an additional consideration factor enabling expenditure in response to a catastrophic event to be taken into account. We agree, and have amended the determination to reflect this suggestion.¹⁵⁰³
- 9.143 The principal constraint on the Commission's power to amend the PQ path is unchanged: the path must not be amended more than is reasonably necessary to respond to the reopener event. As such, we consider our final decision promotes certainty and the long-term benefit of end-users.
- 9.144 If we decide to amend the PQ path in response to a reopener request, and the request involves capex, we will evaluate whether that capex meets the expenditure objective and reflects good telecommunications industry practice.

¹⁵⁰² Chorus "Submission on Fibre IMs further consultation package" (14 August 2020), para 120.

¹⁵⁰³ See Fibre Input Methodologies Determination 2020 (13 October 2020), clause 3.9.8.

9.145 We may also apply general requirements for evaluating capex, recognising that the capex involved is likely to be significantly less than the base capex amount evaluated prior to the regulatory period. Any amount of capex we approve in reconsidering the PQ path will be no more than is reasonably necessary to account for relevant cost changes.

Final decision: regulatory balance dates

9.146 This section sets out our final decision and reasons for specifying rules for regulatory balance dates. This decision has changed since we published our RPR draft decision in the way it applies to ID regulation.

9.147 Our final decision is to define the term “disclosure year”:

9.147.1 for the purposes of PQ regulation for RP1, as “12-month period ending on 31 December” (unchanged from our draft decision); and

9.147.2 for the purposes of ID regulation, a 12-month period ending on the date specified in an ID determination (changed from draft decision).

9.148 As explained below from paragraph 9.154, we received a number of submissions regarding the strain regulated providers would face if they had to report as at their annual statutory reporting dates as well as 31 December. In response to these submissions, we will not require that “disclosure year” be defined in an ID determination as ending on 31 December.

Explanation of regulatory balance dates

9.149 As explained in the RPR draft decision, it is relevant to consider annual regulatory balance dates for the purposes of implementing fibre regulation because:¹⁵⁰⁴

9.149.1 the BBM approach tends to rely on calculations performed for discrete annual periods consistent with financial accounting conventions;

9.149.2 PQ and ID determinations are required to set out relevant time frames including the regulatory periods that must be complied with or apply; and

9.149.3 the implementation date for both PQ and ID regulation is 1 January 2022, and the duration of the first regulatory period for PQ regulation is 3 years.

¹⁵⁰⁴ Commerce Commission “Fibre input methodologies – Regulatory processes and rules topic paper” (19 August 2019), page 9.

9.150 The concept of annual regulatory calculations is embedded in the IMs through the definition of “disclosure year” and “regulatory year”. Regulatory year is defined in relation to PQ IMs, and the term disclosure year is used in PQ and ID IMs.¹⁵⁰⁵

9.151 For example:

9.151.1 the asset valuation IM uses the term:

9.151.1.1 “disclosure year” in the rules for calculating the opening RAB value in respect of fibre assets;¹⁵⁰⁶

9.151.1.2 “regulatory year” in the rules for a fibre asset’s remaining asset life;¹⁵⁰⁷

9.151.2 the cost of capital IM uses the term “regulatory year” in the calculation of the average investor tax rate;¹⁵⁰⁸ and

9.151.3 the taxation IM uses the term “disclosure year” in the rules for calculating opening tax losses.¹⁵⁰⁹

9.152 A variety of approaches to setting balance dates have been used for regulation under Part 4 of the Commerce Act,¹⁵¹⁰ for example:

9.152.1 for electricity transmission, Transpower’s IPP defines the regulatory control period as the year ending 31 March but the disclosure year as the year ending 30 June;¹⁵¹¹

9.152.2 electricity distribution businesses must disclose information and are PQ regulated on an annual basis with 31 March as the regulatory year end, irrespective of their financial reporting balance dates;¹⁵¹² and

¹⁵⁰⁵ Disclosure year is defined “for the purposes of specifying the price-quality path for the first regulatory period...” as set out in See Fibre Input Methodologies Determination 2020, clause 1.1.4.

¹⁵⁰⁶ Fibre Input Methodologies Determination 2020 (13 October 2020), clause 3.3.1.

¹⁵⁰⁷ Fibre Input Methodologies Determination 2020 (13 October 2020), clause 3.3.2.

¹⁵⁰⁸ Fibre Input Methodologies Determination 2020 (13 October 2020), clause 3.5.2.

¹⁵⁰⁹ Fibre Input Methodologies Determination 2020 (13 October 2020), clause 2.3.3.

¹⁵¹⁰ Commerce Commission “Fibre input methodologies – Regulatory processes and rules topic paper” (19 August 2019), page 11.

¹⁵¹¹ Commerce Commission Transpower Individual Price-Quality Path Determination 2015 (consolidated 26 November 2018), page 11.

¹⁵¹² Commerce Commission Electricity Distribution Information Disclosure Determination 2012 (consolidated April 2018), page 15.

9.152.3 gas distribution businesses have varying disclosure years for ID, aligned with their financial reporting years.¹⁵¹³

9.153 These precedents illustrate that, subject to any specific legislative direction, potentially any regulatory balance date could be accommodated if needed for fibre,¹⁵¹⁴ although different options could be expected to come with advantages and disadvantages. This was reflected in the variety of views in the submissions and cross submissions we received from stakeholders.

Submitters' views on regulatory balance dates

9.154 Throughout our fibre IMs consultation process, we have sought feedback from stakeholders on whether we should set regulatory balance dates so that:¹⁵¹⁵

9.154.1 each regulated provider's disclosure year lines up with their financial reporting year which could reduce reporting and compliance costs; or

9.154.2 all regulated providers have the same disclosure year so interested parties (including the Commission) can assess performance more easily.

9.155 Our draft decision was that the regulatory balance date for all regulated providers will be 31 December for the following reasons.

9.155.1 This approach is consistent with the implementation date and initial regulatory period length of three years. It allows roll-forward values or allocated costs for even periods of 12 months. It avoids having to calculate or roll-forward values for part years and needing to adjust the IMs for that (eg, part year depreciation or revaluations).

9.155.2 If each regulated provider has the same disclosure year for ID regulation, this will facilitate interested persons (including the Commission) to compare financial and other information about the performance of regulated providers, in accordance with s 187(2)(b).¹⁵¹⁶

¹⁵¹³ Commerce Commission Gas Distribution Information Disclosure Determination 2012 (consolidated April 2018), page 13.

¹⁵¹⁴ Chorus noted in its submission "the approach with Transpower's IPP where the ID disclosure year is 30 June and revenue control balance date is offset to 31 March". Chorus "Fibre Regulatory Processes and Rules submission" (10 September 2019), page 19.

¹⁵¹⁵ See Commerce Commission "Fibre input methodologies – Regulatory processes and rules topic paper" (19 August 2019), page 10.

¹⁵¹⁶ Section 187(2)(b) states that the Commission must publish a summary and analysis of information disclosed for the purposes of ID regulation to promote "...greater understanding of the performance of individual regulated fibre service providers, their relative performance, changes in their performance over time, and their ability to extract excessive profits."

- 9.156 We are aware that Chorus, Enable and Northpower Fibre all have 30 June balance dates for financial reporting purposes, whereas Northpower LFC2 and Ultrafast have 31 March company balance dates. The regulated providers' submissions contained details about the difficulties they would face in complying with this obligation.
- 9.157 The submissions on the draft decision favoured specifying arrangements for regulatory balance dates in the IMs in the interest of certainty. Submissions opposing our draft decision made the following points:
- 9.157.1 The cost and effort involved would not be justified, especially for smaller LFCs who do not prepare half yearly reports as at 31 December.¹⁵¹⁷
 - 9.157.2 Regulatory balance dates should not be set as at 31 December because current industry convention is for prices to be reset on 1 July. Common reporting dates are not essential for compiling relative performance assessments, which are undertaken for the regulated gas and airports sectors without common reporting dates.¹⁵¹⁸
- 9.158 There was limited support for our draft decision, with Vocus submitting that regulated providers having the same disclosure year would help interested parties assess performance.¹⁵¹⁹ Chorus submitted that they accepted our draft decision and acknowledged the "...additional costs associated with this arrangement".¹⁵²⁰
- 9.159 Having considered submissions on our draft decision, our further consultation decision was to change the definition of "disclosure year" so that, other than for the purposes of setting PQ regulation for RP1, it "means the 12-month period ending on the date specified in an ID determination". Submitters largely supported this change in our decision, including support from Northpower, and Enable and Ultrafast.¹⁵²¹

Rationale for our final decision: regulatory balance dates

- 9.160 Our final decision is to define "disclosure year" as follows:¹⁵²²

¹⁵¹⁷ Enable and Ultrafast "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 2; Enable and UFF "Cross-submission on Fibre input methodologies – Regulatory processes and rules draft decision" (23 June 2020), page 2; Northpower "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 2.

¹⁵¹⁸ Enable and Ultrafast "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 2

¹⁵¹⁹ Vocus "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 5.

¹⁵²⁰ Chorus "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 19.

¹⁵²¹ Northpower "Submission on Fibre IMs further consultation package" (14 August 2020); Enable and Ultrafast "Submission on Fibre IMs further consultation package" (14 August 2020).

¹⁵²² Fibre Input Methodologies Determination 2020 (13 October 2020), clause 1.1.4.

- 9.160.1 for the purposes of specifying the price quality path for the first regulatory period, a 12-month period ending on 31 December, where if the term “disclosure year” is combined with a year, the 12-month period ending on 31 December of that year (for example, “disclosure year 2019” means the 12-month period ending on 31 December 2019); and
- 9.160.2 in all other instances, a 12-month period ending on the date specified in an ID determination.
- 9.161 The reason for this change is that we consider we can set regulatory balance dates in an ID determination in a way that reduces regulatory burden while still supporting the purposes of PQ and ID regulation. For example, we may require regulated providers to report on certain information as at their financial reporting balance date, and other information at a uniform date on a quarterly or half-yearly basis.
- 9.162 We will be able to assess the costs and benefits of requiring regulated providers report as at certain dates once we have further developed the ID regulation.
- 9.163 In reaching our final decision on this matter we considered which option was most consistent with legislative directions and requirements, such as the need to implement PQ and ID regulation from 1 January 2022,¹⁵²³ as well as the purpose statements in the Act.¹⁵²⁴
- 9.164 We also considered the likely reporting and compliance burden of each option, such as the potential consequences of regulated providers being required to prepare financial reports for two different periods or having to undertake additional reporting processes at financial year end.
- 9.165 We agree that it is important that regulated providers are able to comply with regulatory requirements and acknowledge that there are some costs involved in meeting the regulatory reporting obligations set by the Commission. As we develop PQ and ID regulatory requirements, we will consider further how to manage reporting and compliance costs for regulated providers.
- 9.166 Our view is that including these arrangements promotes the purpose of input methodologies, “...to promote certainty for regulated fibre service providers, access seekers, and end-users in relation to the rules, requirements, and processes applying

¹⁵²³ Section 172 of the Act states that we must determine PQ and ID regulation for the first regulatory period before implementation date. Implementation date is 1 January 2022 – see Notice of Deferral of Implementation Date Under the Telecommunications Act 2001 (12 December 2019) *New Zealand Gazette* No 2018-go220.

¹⁵²⁴ The purpose of Part 6 of the Act is set out in s 162; matters to be considered by the Commission and Minister are set out in s 166.

to the regulation..." as set out in s 174. In addition, it will help Chorus "...estimate the material effects of the methodology" per s 176(2), since it will know that certain aspects of PQ regulation will be based around of a 31 December year-end.

- 9.167 In particular, the rules will promote certainty for regulated providers and help them prepare for fibre regulation (eg, by making any required adjustments to their financial reporting processes).¹⁵²⁵ Therefore, our final decision is to define disclosure year for the purposes of PQ regulation as set out in paragraph 9.160.19.151.1.1. In addition, we have defined "regulatory year" as follows:¹⁵²⁶

...means a 12-month period ending on 31 December, where if the term "regulatory year" is combined with a year, the 12-month period ending on 31 December of that year (for example, "regulatory year 2022" means the 12-month period ending on 31 December 2022)

Final decisions: other IM-related matters

- 9.168 This chapter covers the other topic areas suggested by interested persons that have not been included in our final decisions for the RPR IM. Various submitters suggested that processes or rules for other topic areas be included in the RPR IM.

Final decision: PQ proposal and evaluation process

- 9.169 Our final decision is not to specify the PQ proposal and evaluation process in the RPR IM, since circumstances surrounding setting upcoming PQ paths could differ markedly from period to period. This decision is unchanged from the draft decision.
- 9.170 In its submission on our draft decision, 2degrees suggested that given the time constraints we are working under, we could set a high level proposal/evaluation process in the IMs which could then be "refined with further detail in conjunction with the development of the PQR for the first regulatory period".¹⁵²⁷ We do not consider there would be any benefit to this, since it risks locking aspects of the proposal/evaluation process for a marginal increase in certainty.
- 9.171 Spark made the point that Chorus may already be making assumptions about the PQ proposal process.¹⁵²⁸ We reiterate that these issues will be covered in our PQ consultation process, and that we do not consider it necessary to provide details on the PQ proposal process in the IMs.

¹⁵²⁵ While these benefits also apply to ID regulation, we consider they are outweighed by the costs, as discussed above.

¹⁵²⁶ Fibre Input Methodologies Determination 2020 (13 October 2020), clause 1.1.4.

¹⁵²⁷ 2degrees "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 4.

¹⁵²⁸ Spark "Cross-submission on Fibre input methodologies – Regulatory processes and rules draft decision" (23 June 2020), pages 1 and 4.

9.172 We consider that having the flexibility to respond to differing circumstances by tailoring our approach to setting PQ paths is in the long-term interest of end-users. The alternative would be to lock in a proposal/evaluation process in the IMs which may not accurately reflect end-user needs at the time we determine the PQ-path. Moreover, we intend to provide suitable guidance on this process when we set PQ regulation. We note that we have made final decisions on capex projects as required by s 176(1)(d), but that rules for the PQ path proposal and evaluation processes are not matters that we are required to address in the RPR IM.

Final decision: pricing methodologies

- 9.173 Our final decision is not to determine pricing methodologies in RP1. We consider that the legal constraints that the Act imposes on Chorus' pricing will,¹⁵²⁹ at least for the first regulatory period, sufficiently limit Chorus' ability to set prices in ways that could lead to long-term harm to competition or to the detriment of end-users.¹⁵³⁰
- 9.174 Spark submitted that because the Commission may consider pricing-related matters (such as anchor prices) in RP1, we should set out the approach we would follow to promote certainty and facilitate investment decision-making.¹⁵³¹
- 9.175 Enable and Ultrafast did not support Spark's suggestion, noting that "...the Commission has no role in setting prices for LFCs" and that price-setting is not anticipated by s 174 or 176 of the Act.¹⁵³²
- 9.176 We do not consider that including a pricing methodology will facilitate investment decisions, as pricing is only one factor in investment decisions. Such decisions are generally based on overall returns made (ie, the ability to earn the allowed WACC), rather than the prices of individual products.
- 9.177 In terms of Enable and Ultrafast's point, we agree insofar as ID regulated providers are concerned. However, without a pricing IM we still have the option to specify price monitoring requirements under ID, including information on the methodologies regulated providers use to set prices. Also, while we have a role in setting prices (maximum revenues) for PQ regulated providers, our view is that we do not need pricing methodologies to undertake this task.

¹⁵²⁹ These constraints are set out in ss 195-201.

¹⁵³⁰ Commerce Commission "Fibre regulation emerging views – Technical paper" (21 May 2019), page 26. The expert panel pricing report supported this view – see Ingo Vogelsang and Martin Cave "Pricing under the new regulatory framework provided by Part 6 of the Telecommunications Act" (21 May 2019).

¹⁵³¹ Spark "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), page 2.

¹⁵³² Enable and UFF "Cross-submission on Fibre input methodologies – Regulatory processes and rules draft decision" (23 June 2020), page 3.

Final decision: expenditure incentives

- 9.178 Our final decision is not to include specific expenditure incentives such as an incremental rolling incentive scheme (**IRIS**) in the fibre IMs at this stage. This decision remains unchanged from the draft decision. We consider that the efficiency-related risks to end-users in the short term are likely to be low. In this context, it is not evident that introducing an IRIS for RP1 is likely to better incentivise efficiency improvements, as required by s 162(b).
- 9.179 Expenditure-related incentive schemes such as IRIS aim to adjust and enhance the regime's incentives for regulated providers to improve efficiency. By design, the regime already provides incentives for regulated providers to improve efficiency. With or without an expenditure incentive scheme, setting the revenue path against forecast expenditure provides for some financial incentives to operate efficiently, and thus outperform the forecasts, consistent with s 162(b). More generally, Chorus may also face further incentives to improve efficiency from the threat of competition, although the strength of this threat is currently unknown.
- 9.180 Including an expenditure incentive scheme would give us the additional ability to:
- 9.180.1 modify the overall incentive strength provided by the initial three-year regulatory period, if we considered it was not appropriate;
 - 9.180.2 equalise the incentive strength across the regulatory period to eliminate the incentive to strategically (but inefficiently) time expenditure;
 - 9.180.3 equalise the incentive strength that applies to opex and capex to eliminate the incentive to inefficiently substitute one for the other; and
 - 9.180.4 eliminate the incentive to game resets by inflating expenditure incurred in the base year (ie, the year used as the base from which to forecast expenditure for the subsequent regulatory period).
- 9.181 Despite the above incentive risks, we do not consider we need an incentive scheme as the following factors will likely mitigate these risks in the short term for the following reasons.
- 9.181.1 Chorus' ability to find efficiency improvements is likely lower in the short term, especially for capex. This is because the communal fibre network is new, and therefore the need to replace and maintain assets is small. Because of this, even though incentives to find efficiencies are weak given the shorter regulatory period, the potential harm is also likely lower. However, the risk to efficiency will grow over time. This suggests that we should continue to monitor it and potentially consider ways to increase the incentive strength if the need arises in the future.

- 9.181.2 The three-year regulatory period also means that the ability to game the timing of expenditure is reduced. There are other targeted tools that we can use to mitigate the risk of gaming the timing of expenditure, like the connection capex mechanism and quality standards under PQ regulation.
- 9.181.3 The scope for capex/opex substitution in the first regulatory period is low as a lot of capex has recently been incurred in the ultrafast broadband rollout. Also, the ability to inefficiently substitute connection capex (which will initially be a large capex category) for opex is low.
- 9.182 On balance, we have decided that not introducing an expenditure incentive scheme at this stage best gives effect to s 162(b) of the Act. Given that the benefits from introducing an expenditure incentive scheme in RP1 might be marginal (as explained above), this decision avoids introducing additional regulatory complexity in the regime at this early stage.
- 9.183 Deferring the introduction of an expenditure incentive scheme will allow us to understand how the incentives already built into the regime eventuate and gather evidence to validate risks. This should allow us, if required in future, to design a fit-for-purpose expenditure incentive scheme that is informed by evidence and minimises the risk of unintended consequences and unnecessary complexities.
- 9.184 Chorus recommended the Commission look to develop an efficiency incentive regime for RP2 to encourage investment and innovation, and promote flexibility in responding to changes in consumer demand.¹⁵³³ Since we did not receive any other submissions on this issue, our decision remains unchanged from the draft decision on expenditure incentives.

¹⁵³³ Chorus “Submission on Fibre input methodologies – Regulatory processes and rules draft decision” (3 June 2020), page 17.

Attachment A: Glossary of terms

Term	Definition
4G	The current level of in-use mobile technology in New Zealand.
5G	The next generation of mobile technology in New Zealand.
10GPON	10 gigabits per second passive optical network
ABAA	Accounting-based allocation approach
ACAM	Avoidable cost allocation methodology
Access seeker	Has the same meaning as defined in s 5 of the Act
ATA voice	Analogue telephone adapter voice service
Baseband	A service to enable the delivery of PSTN analogue phone and VoIP telephony services
BBM	Building blocks model
Bitstream	A sequence of bits or data
BFAS	Bandwidth Fibre Access Service
Capex	Capital expenditure
Chorus	Chorus Limited
CIP	Crown Infrastructure Partners
CPI	Consumer Price Index
DFAS	Direct Fibre Access Services
DPP	Default price-quality path
DSL	Digital subscriber line
EDBs	Electricity distribution businesses
Emerging views paper	Our emerging views on fibre IMs, published 21 May 2019
Enable	Enable Networks
EPMU	Equi-proportionate mark-up
Ethernet	as defined by IEEE802.3
Equivalence	Has the same meaning as defined in s156AB of the Act
FAC	Fully allocated cost
Fibre Deed	Means an undertaking given by an LFC in favour of the Crown under s 156AD, providing for non-discrimination, equivalence and other matters in relation to the supply of fibre services
FCM	Financial capital maintenance
FFLAS	Fixed fibre line access services as defined in s 5 of the Act.
FFLAS class	A class of FFLAS in respect of which a regulated provider is subject to regulation under s 226 of the Act, and includes ID FFLAS, PQ FFLAS, ID-only FFLAS, or any additional FFLAS class.
FPP	Final pricing principles for UBA and UCLL
FFLAS product groups	A group of regulated FFLAS products that differ in configuration but bear essentially the same costs regulated FFLAS means any and all FFLAS classes as the case may be and the context requires.

Term	Definition
FTTP	Fibre to the premises
FWA	Fixed wireless access
GAAP	Generally accepted accounting principles
GDBs	Gas distribution businesses
GEIP	Good electrical industry practice
GPS	Government policy statement
HSNS	High speed network service
ICABS	Intra Candidate Area Backhaul Service
ID	Information disclosure
ID FFLAS	FFLAS in respect of which a regulated provider is subject to information disclosure regulation
ID-only FFLAS	FFLAS in respect of a regulated provider is subject to information disclosure regulation in regulations; and is not subject to price-quality regulation
IMs	Input methodologies
IPP	Individual price-quality path
IRD	Inland revenue department
IV	Independent verifier
Layer 1	means layer 1 of the OSI Model
Layer 2	means layer 2 of the OSI Model
LFC	Has the same meaning as defined in s156AB of the Act
MAR	Maximum allowable revenue
MBIE	Ministry of Business, Innovation and Employment
MCP	Major capex project
MRP	Market risk premium
Multicast	A service that provides one or more media streams to multiple selected users simultaneously within a geographical region
NGPON	Next generation passive optical network
Northpower	Northpower Fibre Limited and Northpower LFC2
Non-discrimination	Has the same meaning as defined in s156AB of the Act
NPV	Net present value
Opex	Operating expenditure
OVABAA	Optional variance accounting-based allocation approach
OSI Model	The functions of telecommunications and computer systems described in layers
Part 4	Part 4 of the Commerce Act 1986
Part 4 IM merits appeal	The High Court's detailed examination of IMs for regulation of electricity distribution and transmission, gas pipelines and airports in the merits appeal of our December 2010 Part 4 IMs determinations

Term	Definition
Part 4 regulated service	Services subject to regulation under Part 4 of the Commerce Act 1986.
Part 6	Part 6 of the Telecommunications Act 2001
POIs	Points of interconnection
PON	Passive optical network
PONFAS	Passive optical network fibre access service
PQ	Price-quality
PQ FFLAS	FFLAS in respect of which a regulated provider is subject to price-quality regulation
Proposed approach paper	New regulatory framework for fibre - Invitation to comment on our proposed approach (9 November 2018)
RAB	Regulated asset base
Regulated FFLAS	FFLAS in respect of which a regulated provider is subject to regulation under s 226 of the Act
Regulated provider	Has the same meaning as 'regulated fibre service provider' as defined in s 5 of the Act
RSQ	Retail service quality
Section 166(2)	Sections 166(2)(a) and 166(2)(b) ¹⁵³⁴
Services that are not regulated FFLAS	Means telecommunications services that are not regulated FFLAS; any Part 4 regulated service; or any service that is not regulated under Part 6 of the Act or Part 4 of the Commerce Act 1986.
S&P	Standard and Poor's
SBL-CAPM	Simplified Brennan-Lally Capital Asset Pricing Model
Spark	Spark New Zealand
TAMRP	Tax adjusted market risk premium
TCSD	Term credit spread differential
TES	Tail extension service
Telecom	Telecom New Zealand
The Act	Telecommunications Act 2001
The Commerce Act	Commerce Act 1986
The Commission	The Commerce Commission / Te Komihana Tauhokohoko
Telecommunications service	Has the same meaning as defined in s 5 of the Act
Telecommunications services that are not regulated FFLAS	Means any telecommunications service provided by a regulated provider that is not regulated FFLAS
Totex	Total expenditure
TSLRIC	Total service long run incremental cost

¹⁵³⁴ All references to the purposes of s 166(2) in this paper include the purposes in both s 1662(a) and S166(2)(b)

Term	Definition
UBA	Unbundled bitstream access
UCLL	Unbundled copper local loop
UFB initiative	Has the same meaning as defined in s 5 of the Act
UFB2	Has the same meaning as in paragraph (b) of UFB initiative
UFB partner	Has the same meaning as defined in s 5 of the Act
Ultrafast	Ultrafast Fibre Limited
VDSL	Very-high-bit-rate digital subscriber line
WACC	Weighted average cost of capital

Attachment B: Members of our expert advisory panel

- B1 We formed an expert advisory panel to assist Commissioners with their work to develop and implement the input methodologies, price-quality path and information disclosure regulations for FFLAS. This panel comprises Martin Cave and Ingo Vogelsang, whose qualifications and experience are outlined below.

Martin Cave

- B2 Martin Cave is an economist specialising in competition law and the regulation of network industries, especially the communications sector. He is currently the Chair of the Gas and Electricity Markets Authority in the UK. He formerly held chairs at Brunel University (in the Department of Economics), at Warwick University (in the Business School), and in 2010-11 at the London School of Economics (as a BP centennial chair in the Law Department).
- B3 He has written a number of books and papers on regulation, often with Robert Baldwin as a co-author – including the optimistically called *Understanding Regulation* (Oxford University Press, 2012). They are currently working on a book provisionally entitled *Taming the Corporation*.
- B4 Between January 2012 and January 2018, he was a deputy chair at the UK Competition Commission and a deputy panel chair at the UK Competition and Markets Authority. He has advised governments and regulators in several sectors in a number of countries and undertook a number of independent reviews for the UK government on the regulation of airports, social housing, telecommunications and the water sector.
- B5 He has previously provided expert advice to the Commerce Commission for the development of IMs under Part 4.

Ingo Vogelsang

- B6 Ingo Vogelsang is a professor of economics at Boston University. He has a Ph.D. in economics from the University of Heidelberg in 1969. From 1968 to 1975 he was a managing limited partner of Vogelsang & Schönfeld, an international fuel-trading firm in Hamburg, Germany. He subsequently taught economics at the University of Bonn until 1980. From 1981 on he has been at Boston University.

- B7 He is an Associate Editor of *Information Economics and Policy* and on the editorial board of several other journals, including the *Journal of Regulatory Economics*. His major consultancies include the RAND Corporation, the World Bank, the European Commission, the German Ministry of Economics (BMWi), the German Monopoly Commission, the German regulatory agency (BNetzA), and regulatory agencies in a number of countries.
- B8 He has previously provided expert advice to the Commerce Commission for the development of IMs under Part 4.

Attachment C: Asset Valuation – Treatment of Intangibles

C1 This appendix explains the final decisions for the regulatory treatment of the following types of intangible assets:

- a. goodwill
- b. working capital
- c. interest during construction;
- d. easements; and
- e. right-of-use assets.

Treatment of goodwill

Final decision

C2 Our final decision is to exclude goodwill from the RAB.

Rationale

C3 GAAP provides for four circumstances of acquisition and the measurement of asset costs:

- a. acquisition of assets in a business combination;
- b. acquisition of a single asset by paying cash;
- c. acquisition of a single asset by exchange of other assets; and
- d. acquisition of assets from a related party.

C4 Goodwill only arises in a circumstance involving ‘acquisition of assets in a business combination’, ie, where a business is acquired from another service provider for a price which is greater than the fair value of the assets of the business at the time of the acquisition.

C5 The difference in value is usually attributed to ‘goodwill’ and is recognised in the financial statements of the acquirer as an asset.¹⁵³⁵ Goodwill is an intangible item and represents the acquirer’s anticipation of future economic benefits from assets where such benefits cannot be individually identified and separately recognised.

C6 In workably competitive markets, service providers generally cannot earn additional returns simply as the result of the goodwill included in their payments to acquire

¹⁵³⁵ It is important to distinguish between the ‘fair value’ of the assets of the business, and the ‘fair value’ of the business enterprise as a whole (ie, the price a purchaser is willing to pay for the business), which may be greater. Accounting Standard NZ IFRS 3 provides guidance on the recognition of goodwill for ‘business combinations’.

assets. Even if such payments were justifiable, the process of separating out the portion of those payments which reflect specific factors (such as potential efficiency gains) would be subjective and arbitrary. Further, allowing goodwill to be included in the RAB may incentivise inefficient consolidations.

- C7 Excluding goodwill from the RAB will help to produce outcomes consistent with those in workably competitive markets and will promote the long-term benefits of end-users. Our final decision to exclude goodwill from the RAB therefore best gives effect to the Part 6 purpose at s 162.¹⁵³⁶
- C8 We recognise that preserving incentives for regulated providers to make efficiency savings, including through mergers or acquisitions involving other regulated providers, is consistent with s 162(b). Including goodwill in the RAB, however, is not an appropriate way to preserve incentives for efficiency savings.
- C9 Fibre service providers will be allowed to keep potential efficiencies from mergers or acquisitions by not re-opening the PQ path set during the regulatory period in which the merger occurs. Efficiency gains, including those associated with the transaction, will be shared with end-users over time.

Treatment of working capital and finance during construction

Final decision

- C10 Our final decision is that regulated providers:
 - a. must exclude from their RAB values any assets (ie, working capital) that attract finance costs during construction;
 - b. capitalise the financing costs attributable to the construction of an asset in accordance with GAAP and cease capitalising financing costs at the point at which the asset is commissioned. Consistent with GAAP, regulated fibre providers must suspend capitalising financing costs during periods in which they suspend construction of the asset;
 - c. must not apply capitalised financing costs to capital contributions, if they are received;
 - d. for the post implementation period, must apply the cost of financing at a rate not greater than the regulated provider's weighted average of borrowing costs for each applicable disclosure year; and
 - e. for the pre-implementation period, the cost of finance during construction should reflect a regulated provider's treatment of borrowing cost under GAAP, without the need to apply a cap.

¹⁵³⁶ Note that the same rule applies to service providers regulated under Part 4.

Change from our draft decision

- C11 In our draft decision, the limit on the cost of financing to a rate not greater than the regulated provider's weighted average of borrowing costs for each applicable disclosure year applied to both the pre and post-implementation periods.

Correction to our draft decision reasons paper explanation of the cap on financing costs

- C12 In the draft decision reasons paper we said that fibre service providers subject to both PQ and ID regulation must calculate the financing costs by applying to the amounts expended on the construction of the asset a rate no greater than the mid-point of the post-tax WACC.¹⁵³⁷
- C13 This wording was incorrect and reflected a treatment of the financing cost of works under construction that is no longer applied by the Commission.¹⁵³⁸ The correct treatment was that applied in the reasons paper to regulated fibre service providers subject to ID only.¹⁵³⁹
- C14 We did not apply this method in the draft determination. The draft determination correctly reflected application of the cost of financing at a rate not greater than the regulated provider's weighted average of borrowing costs for each applicable disclosure year.

Rationale

- C15 The exclusion of working capital is implemented in the IM Determination by excluding intangible assets from the RAB value, unless they are both identifiable and not monetary.¹⁵⁴⁰ As working capital is an intangible asset that is monetary, regulated fibre providers must exclude working capital from their RAB values.
- C16 For regulated fibre providers subject to both PQ and ID regulation, or to ID only, the applicable rate must be no greater than the fibre service provider's weighted average borrowing costs for each applicable disclosure year.
- C17 When works under construction are commissioned, the RAB value of the asset must be net of any revenue earned. That is, regulated fibre providers must reduce the cost of the asset, established to be consistent with GAAP, by the amount of any revenue derived in relation to the assets while they were works under construction (where

¹⁵³⁷ Commerce Commission "Fibre input methodologies – Draft decision paper" (19 November 2019), paragraph 5.20.

¹⁵³⁸ See Commerce Commission, Input methodologies review decisions consolidated reasons papers, 20 December 2016 page 151.

¹⁵³⁹ Commerce Commission "Fibre input methodologies – Draft decision paper" (19 November 2019), paragraph 5.21.

¹⁵⁴⁰ We adopt the GAAP definition of identifiable non-monetary assets (which, for the avoidance of doubt, includes right-of-use assets) except that our definition excludes goodwill.

such a reduction is not already made under GAAP, and where the revenue has not already been reported as income under ID).

Submissions on the draft decision

- C18 Chorus submitted that:¹⁵⁴¹

While we support the draft decision to exclude working capital from the RAB and to include interest during construction in the RAB (capped at cost of capital) post-implementation, we don't support the interest included being capped at cost of capital for the pre-implementation period.

If the cost of capital is different to the interest applied during construction, it would require a lot of complex work to go back and change the methodology to historical data for little benefit. This is because:

There may be little difference in the rates in practice; and

The value of works in construction which attract the interest is relatively small.

- C19 We understand Chorus' concerns regarding re-work of historical data for the transition period. Such an exercise is likely to be complex and costly without producing significant benefits.
- C20 We are concerned that the calculation of the initial RAB (including the financial loss asset) includes an appropriate amount of finance during construction. Section 177(2) provides that we must refer to the costs the regulated provider incurred in providing FFLAS under the UFB initiative during the transition period. Further, the initial value of a fibre asset must be valued at actual cost (ie, the legislation does not permit any review of costs for efficiency).¹⁵⁴²
- C21 We have therefore changed the pre-implementation approach so that the calculation of the initial RAB (including the financial loss asset) would incorporate finance during construction consistent with the cost regulated providers actually incurred, reflected in commissioned asset values in accordance with GAAP.

Treatment of easements

Final decision

- C22 Our final decision is that regulated fibre providers may include new easement rights in the RAB at cost in the year in which the rights are acquired, at a value that may not exceed fair market value, as determined by an independent valuer.

Rationale

¹⁵⁴¹ Chorus "Submission on Fibre input methodologies – Draft decision" (30 January 2020), paragraphs 105-106.

¹⁵⁴² Section 177(1) and (5).

- C23 The cost of new easement rights are the costs to acquire the rights, together with any associated injurious affection payments and all other costs of establishing the easements, (excluding any costs that are expensed by regulated fibre providers as operating expenditure).
- C24 Where a regulated provider acquires land to create a new easement, with the intention of selling the land, only the costs of the easement may be included in the RAB value.
- C25 At implementation the value of existing easements will be the value for those easements as of 1 December 2011.
- C26 Fibre service providers may depreciate easements only where they have a limited life or are required for a known, limited period of time (this applies to existing as well as new easements).
- C27 An easement is a property right to do something, or to prevent someone else from doing something, usually in a particular geographic area. The costs of creating or acquiring easement rights can form part of the costs of the assets necessary for a fibre service provider to provide regulated services to end-users.
- C28 Fibre service providers should be entitled to recover reasonable costs of establishing new easements for the purpose of providing regulated services – this approach is consistent with the FCM principle and contributes to achieving the Part 6 purpose at s 162(a). Providing some limitation on the RAB value of a new easement will ensure regulated providers have incentives to limit these costs, an approach consistent with the objective at s 162(b). The market value of an easement at the time of its establishment can be expected to reflect the reasonable costs to establish the easement rights and therefore is an appropriate upper limit on the easement value a regulated provider may recognise in its RAB. For this purpose, the market value includes:
- a. where a fibre service provider does not own the land over which the easement is being established, legal costs plus any injurious affection payment to the land-owner to recognise any reduction in the value of the land attributable to the easement; or
 - b. where a fibre service provider owns the land over which the easement is being established, legal costs, the amount of any reduction in the value of the land caused by the creation of the easement, and holding costs up to the point that the land is sold or the associated asset is commissioned (whichever occurs first).
- C29 With respect to holding costs, the asset valuation IM will allow regulated providers to capitalise holding costs on all monies paid to purchase land for the purposes of creating an easement, up to the date that the easement is created. Such holding costs may be calculated at a rate no higher than the mid-point of the regulatory post-tax WACC published by the Commission or, in the case of regulated fibre

providers only subject to ID regulation, a rate that is no greater than the service provider's own estimate of its post-tax WACC.

- C30 A regulated provider may face other legitimate costs associated with the construction of new assets. For example, where a fibre service provider pays compensation to landowners for disruption to their business resulting from construction, it should be able to recover these costs. However, such costs would generally be a cost of construction, not a cost of the easement. As such they should be included in works under construction, consistent with GAAP, and would be capitalised when the newly constructed asset is commissioned. Only costs that are a direct cost of establishing the easement may be included in the value of the easement.

Treatment of right-of-use assets

Final decision

- C31 Our final decision is to generally accept GAAP treatment in relation to NZ IFRS 16 for asset valuation applied to PQ and ID. This means that allowable revenue and returns on investment under ID would be calculated using capitalised 'right-of-use' asset values.¹⁵⁴³
- C32 The exceptions to this rule are any operating lease costs treated as pass-through or recoverable costs in the regulatory processes and rules IM. Pass-through and recoverable costs must be treated as operating costs for regulatory purposes.

Decision-making framework

- C33 To reach a final decision, we considered which approach:
- is likely to promote the Part 6 purpose in s 162 of the Act most effectively;
 - is likely to promote the IM purpose in s 174 of the Act more effectively (without detrimentally affecting the promotion of the s 162 purpose);
 - is likely to be most cost effective (without detrimentally affecting the promotion of the s 162 purpose).

Problem definition

- C34 The change in the accounting standard NZ IFRS 16 affects the calculation of the loss asset before the implementation date (as per s 177(3)), and the initial RAB for the implementation date.

¹⁵⁴³ Right-of-use assets are a novel instrument for our regulatory regime, since they are generally contracting for the temporary use of an asset, rather than ownership of the underlying asset itself.

- C35 The question is whether the asset valuation IM should adopt GAAP treatment of operating leases, or whether operating lease costs should be treated as operating costs (*ie*, in the same manner as before the implementation of IFRS16).
- C36 This decision is associated with the risks listed below.
- a. Regulated services providers might earn more or less than the normal rate of return that a service provider could *ex-ante* expect to earn over the lifetime of its assets, such that this may be inconsistent with the profit outcomes that the Part 6 purpose seeks to promote.
 - b. Differences in the treatment of operating leases between the IMs and the new accounting standard may introduce unnecessary compliance costs or complexity.
- C37 We did not identify any implications for competition in telecommunications markets that might arise from this final decision and that would require us to take a different approach from the one that we have determined best gives effect to s 162.

Reasons for aligning IM with GAAP

- C38 Below we explain our final decision to align our regulatory rules with GAAP for PQ and ID regulation.
- C39 As a general principle, we apply GAAP in setting values under the price paths or IMs in such a way that the differences between the values used for regulatory purposes (*ie*, for costs or assets) and the equivalent values used for financial reporting are minimised. This is consistent with setting fit for purpose PQ and ID requirements that promote the Part 6 purpose in a way that reduces compliance costs and complexity.
- C40 If we do not accept the capitalisation of operating leases for regulatory purposes, there will be a mismatch between the regulated providers' regulatory asset values and operating expenditure (opex), and asset values and opex under GAAP. This could lead to increased compliance costs for regulated fibre providers, as they will need to manage the ongoing differences.
- C41 In respect of right-of-use assets capitalised under NZ IFRS 16 from charges specified as pass-through or recoverable costs, our view is that treating these as pass-through or recoverable costs is appropriate given that any rationale for allowing them to be passed through directly to prices would take precedent over the IFRS 16 considerations.¹⁵⁴⁴ We think that this treatment is consistent with the Part 6 purpose of the Act and will not detract from promoting that purpose in a way that reduces compliance costs and complexity.¹⁵⁴⁵

¹⁵⁴⁴ We currently are not aware of any operating lease costs that are pass through or recoverable costs.

¹⁵⁴⁵ These costs are proposed to be excluded from the definition of opex that applies from implementation date and are required to be disclosed separately.

- C42 We note that our final decision to align our regulatory rules with GAAP for operating leases also applies to finance leases.¹⁵⁴⁶ Our rationale for including finance leases in the RAB is that it is efficient for regulated providers to choose leases over the option of owning the asset, where it minimises the cost over the asset life.
- C43 We consider the rationale for allowing service providers to include finance leases in their RAB is even more applicable to the treatment of operating leases. Compared to operating leases, finance leases typically apply to lower value and shorter-lived assets. We consider there are greater efficiency implications for operating leases in the decision of whether to enter right-of-use leases or to purchase assets.

Materiality of decision

- C44 Our final decision with respect to the treatment of operating leases was informed by a materiality analysis.¹⁵⁴⁷ In our view, two matters that are potentially relevant to fibre services providers:
- Timing of recognition and NPV-equivalence. Under GAAP, the present value of future lease payments is determined at the commencement date of the lease contract, or at the first application date of the new standard for existing leases. Therefore, the time when a PQ regulated provider capitalises its operating leases will not coincide with the time that we reflect the accounting change in its PQ paths. This is because the right-of-use asset value is rolled forward by deducting annual depreciation. At the same time, operating lease payments will drop out of the stream used to derive the initial asset value. Because the annual value of the depreciation and the annual operating lease payments are different, the asset value will no longer be equivalent to the remaining stream of future operating lease payments at the date the PQ path is set. This is likely to result in a small over-recovery for regulated fibre providers subject to PQ regulation.
 - Potential benefit from differences between WACC and discount rate. Under NZ IFRS 16, regulated providers discount the forecast operating lease payment stream at their incremental cost of debt. Adopting GAAP capitalisation treatment as a regulatory rule means that the resultant right-of-use asset will then earn a rate of return based on the (higher) mid-point post-tax WACC determined by the Commission for the relevant regulatory period. Regulated providers therefore benefit from any difference between the WACC and their incremental cost of debt relative to the alternative treatment where the IMs might simply allow recovery of the operating lease payments as opex.

¹⁵⁴⁶ There is no distinction between finance and operating leases for a lessee in NZ IFRS 16. They are both recognised as right-of-use assets.

¹⁵⁴⁷ Refer to Chapter 6 of Commerce Commission, Treatment of operating leases, Draft decisions and reasons paper, 28 August 2019. https://comcom.govt.nz/_data/assets/pdf_file/0013/170140/Treatment-of-operating-leases-Draft-decision-28-August-2019.pdf

- C45 Using information from Chorus' annual reports, we assessed the materiality of requiring operating leases to be treated as opex for the purpose of calculating the loss asset.
- C46 We modelled that the adoption of NZ IFRS 16 provides an NPV benefit of approximately \$2m for Chorus overall.
- C47 Chorus' total operating revenue was \$990m in 2018. This means that the estimated benefit to Chorus represents approximately 0.2% of revenue.
- C48 We do not consider this to be material for Chorus overall. We have not requested information from Chorus (or other regulated fibre providers) to measure the impact to the UFB initiative in isolation. However, based on the reasonable assumption that the ratio of the NPV benefit from capitalising regulated FFLAS operating leases to revenue from the UFB initiative is similar to that for Chorus overall, we would also conclude that the impact is not material.
- C49 The materiality assessment suggests that at this time there is no material net benefit from requiring regulated providers to continue to treat right-of-use assets as opex for regulatory purposes.

Interaction with loss asset calculation

- C50 As discussed in the discussion of the calculation of the financial loss asset, we will rely on regulated fibre providers' actual historic costs consistent with GAAP (supplemented by regulatory rules where required) relating to the UFB initiative.
- C51 Depending on when regulated fibre providers adopted NZ IFRS 16 (no later than 1 January 2019, but they have the option to adopt it earlier), this means that the UFB initiative operating lease costs:
 - c. from 1 December 2011 up to the date of first application for NZ IFRS 16 are treated as opex.
 - d. from the date of first application up to the implementation date (ie, up to 31 December 2021) are capitalised.
- C52 For example, Chorus adopted NZ IFRS 16 on 1 July 2017, so that operating leases relating to the UFB initiative up to 30 June 2017 are treated as opex, and those from 1 July 2017 to 31 December 2021 are capitalised consistent with NZ IFRS 16.

Attachment D: Asset valuation – Treatment of network spares

Final decision

- D1 Our final decision is that regulated providers should include network spares in the roll forward as additions to the RAB value where they are:
- a. treated as the cost of an asset under GAAP (wholly or in part); and
 - b. held in accordance with good telecommunications industry practice.

Change from draft decision

- D2 We have changed the definition of “network spares” from our draft decision. The draft decision included a definition of network spares and the circumstances under which they should take a value of nil in the RAB of a regulated provider. The draft decision provided that regulated providers should have regard to the historical reliability of their equipment and the number of items installed on the network when determining the appropriate quantities of network spares.¹⁵⁴⁸
- D3 Our final decision definition reflects that when determining the appropriate quantity of network spares to be held by regulated providers, the relevant standard is “good telecommunications industry practice”.

Why do we need to specifically address the addition of network spares to the RAB?

- D4 As discussed in the rules for the RAB roll forward mechanism, capital additions are required to follow the valuation rules. This means that regulated fibre providers must include capital additions in the RAB value at cost in the year in which they are ‘commissioned’. A question arises in this context on the treatment of network spares.
- D5 Where the cost of a network spare is treated as the cost of an asset under GAAP (wholly or in part), it may be added to the RAB value at the date on which it is ‘commissioned’. Regulated providers should include network spares in the roll forward as additions to the RAB value where they are appropriately held.

Why we have changed from having regard to equipment historical reliability to good telecommunications industry practice for this decision

- D6 Chorus submitted that:¹⁵⁴⁹

¹⁵⁴⁸ Commerce Commission “Fibre input methodologies – Draft decision paper” (19 November 2019), Attachment D “Treatment of network spares”, paragraph 5.54.

¹⁵⁴⁹ Chorus “Submission on Fibre input methodologies – Draft decision” (30 January 2020), paragraphs 113-114

While we generally agree with the draft decision on network spares, the appropriate quantities held shouldn't be based on historical reliability. This isn't practical when historical performance is not a predictor or driver for how many spares we need to hold (compared to Part 4 industries where historical reliability makes sense). Technology moves quickly in the telecommunications sector, where new versions of equipment (eg layer 2 assets) don't perform the same as their predecessor.

What matters in practice are restoration times and failure rates (typically determined by equipment manufacturers), as these are more reflective of how the number of spares held are determined. We suggest the Commission removes the reference to historical reliability and instead refers to good telecommunications industry practice.

- D7 We agree that the historical reliability may be not be relevant for determining the appropriate quantity of network spares to be held by telecommunications providers. We consider that "good telecommunications industry practice" — which is also used in the capex IM — is an appropriate benchmark for determining the quantity of network spares required.¹⁵⁵⁰
- D8 Allowing regulated providers to include in the RAB roll forward network spares that are suitable replacements for assets installed in the network will provide appropriate incentives for regulated providers to hold sufficient spares to enable suitable responses to unplanned outages and to undertake maintenance efficiently. This must be balanced by ensuring that regulated providers are not encouraged to hold an inappropriately high number of spares. This approach to recognising an appropriate amount of network spares as costs in the RAB is similar to the approach that firms may follow in workably competitive markets. Our final decision therefore gives effect to the purpose at s 162 by seeking a balance between the objectives in s 162(a), (b) and (d). For example, it may mitigate the risks of under-investing in critical network spares.

¹⁵⁵⁰ "Good telecommunications industry practice" means the exercise of a degree of skill, diligence, prudence, foresight and economic management, that would reasonably be expected from a skilled and experienced asset owner engaged in the management of a fibre network under comparable conditions. A decision on good telecommunications industry practice should take into account domestic and international best practice, including international standards.

Attachment E: Section 177: initial value of fibre assets

- (1) The initial value of a fibre asset is calculated by—
 - (a) taking the cost—
 - (i) incurred by a regulated fibre service provider in constructing or acquiring the fibre asset, net of specified capital contributions; or
 - (ii) if the fibre asset was owned by Chorus before 1 December 2011, recorded by Chorus for the fibre asset in its published general purpose financial statements as of 1 December 2011; and
 - (b) adjusting that cost for accumulated depreciation and impairment losses (if any) recognised by the regulated fibre service provider (ignoring any accounting adjustment for Crown financing), as at the implementation date, under generally accepted accounting practice in New Zealand.
- (2) Each regulated fibre service provider is treated, as at the implementation date, as owning a fibre asset with an initial value equal to the financial losses, as determined by the Commission, incurred by the provider in providing fibre fixed line access services under the UFB initiative for the period starting on 1 December 2011 and ending on the close of the day immediately before the implementation date.
- (3) In determining the financial losses under subsection (2), the Commission—
 - (a) must take into account any accumulated unrecovered returns on investments made by the provider under the UFB initiative; and
 - (b) in respect of any Crown financing provided in connection with those investments, must refer to the actual financing costs incurred by the provider (or a related party).
- (4) It is not the intention of subsections (2) and (3) that regulated fibre service providers should be protected from all risk of not fully recovering those financial losses through prices over time.
- (5) To avoid doubt, the initial value of a fibre asset determined under this section includes the costs incurred by the provider in relation to the asset—
 - (a) as a direct result of meeting specific requirements of the UFB initiative; and
 - (b) for both standard connections and non-standard connections.
- (6) In this section,—

accumulated unrecovered returns means the sum (adjusted to reflect the present value, as calculated in the manner that the Commission thinks fit, at the implementation date) of the unrecovered returns on investments for each financial year, or part financial year, that starts on or after 1 December 2011 and ends before the close of the day immediately before the implementation date

fibre asset means an asset that is—

- (a) constructed or acquired by a regulated fibre service provider; and

(b) employed in the provision of fibre fixed line access services (whether or not the asset is also employed in the provision of other services)

specified capital contribution—

(a) means a capital contribution received by a regulated fibre service provider from 1 or more of the following:

(i) an access seeker;

(ii) an end-user;

(iii) any other person, as determined by the Commission; but

(b) does not include any Crown financing

standard connection and **non-standard connection** have the meanings set out in section 155ZU.

Attachment F: Extracts from Martin Lally, The weighted average cost of capital for Electricity Lines Businesses, October 2008.

Asymmetric Risks

- F1 The first of these additional factors are called asymmetric risks, and they include the risks of assets being stranded, of assets being optimised out by a regulator, and of miscellaneous exposures to such events as adverse (and uninsurable) weather conditions. Stranding is the circumstance in which a demand shortfall prevents a business from recovering certain costs from either the intended or other customers. By contrast, optimisation is an accounting device that may be employed or required by regulators, and under which certain assets are excluded from the asset base. The reasons for doing so include penalising over-investment (gold plating), recognising technology improvements, and recognising reductions in demand (although the first of these cases does not appear to warrant any compensation). Thus, demand shortfalls inducing stranding involve both a real economic effect (revenue loss) as well as possible consequences in the form of assets being optimised out by the regulator.¹⁵⁵¹
- F2 In the context of setting a cost-based price threshold, the Commission must decide the following questions. The first issue is whether any allowances for asymmetric risks are warranted. Aside from possible compensation for optimisation arising from gold-plating, it seems clear that failure to otherwise provide compensation would violate the $NPV = 0$ test, *i.e.*, generate cash flows to the business whose present value was less than the initial investment.
- F3 The second issue is whether to deal with these risks through *ex-ante* compensation (possibly via an addition to WACC) or through *ex-post* compensation (if and when the events occur).¹⁵⁵² An *ex-ante* allowance implies that investors bear the risk whereas an *ex-post* allowance implies that consumers bear the risk. *Ex-ante* compensation suffers from the difficulty that it is simply impossible to know what the appropriate level should be. Thus, to ensure investment is forthcoming, one must err on the generous side. Even this may not be enough. If an extreme asymmetric event occurs to the extent that the *ex-ante* compensation received up

1551 The issue of stranding may not be significant here because stranding is most likely to occur for dedicated assets (supplying individual industrial consumers) and the lines businesses may have entered into bilateral contracts to manage such risks. Nevertheless, LECG (2003b) provides some contrary examples.

1552 Ex-post compensation would take the form of increasing prices to other consumers, or to the same consumers in the form of accelerated depreciation in the face of a downward revision in an asset's residual life. For example, an asset might have an anticipated life of 20 years at the time of purchase. After 5 years, it becomes clear that it will be stranded in five years. At this point, the depreciation allowance would be raised so as to depreciate the asset fully over the next 5 rather than 15 years (if this is possible). This is broadly consistent with the approach to depreciation required by accounting standards.

until that time is insufficient to cover it, the regulated business is liable to claim that the *ex-ante* compensation should be raised. By contrast, if the asymmetric events do not occur to the extent envisaged, the regulated business will remain silent. So, even if the *ex-ante* allowance is appropriate, there will still be a bias towards subsequent increases. To draw an analogy, when governments choose to compensate farmers for extreme weather conditions, they do so *ex-post* rather than *ex-ante* for the reasons just noted. Nevertheless, *ex-post* compensation also suffers from certain disadvantages. Firstly, businesses then lack proper incentives to avoid or mitigate such adverse events. Secondly, there is always the possibility of *ex-post* compensation being denied, such as in the case of actions by businesses that are judged by the regulator to be grossly imprudent (whether they are or not). Since there will always be uncertainty on the part of the businesses as to the regulator's decisions in this area, then a regulator's promise to provide *ex-post* compensation must be worth less than face value, in which case businesses face a disincentive to invest.

- F4 The views of the Australian regulators on this question are instructive. In respect of price caps for Victorian gas distributors, the ACCC (1998) seems to have explicitly chosen an asset beta from the upper region of the band in order to compensate investors *ex-ante* for bearing such asymmetric risks. However no quantitative analysis supported this feature of the decision. Since then the ACCC has clearly disavowed that approach. In particular it favours mitigating such risks through such devices as accelerated depreciation (ACCC, 1999, 2001). Otherwise, it recommends explicit identification of the risks along with appropriate adjustment of the cash flows, although the mechanics of this are not articulated. In the ORG's decision concerning Victorian electricity distributors (Office of the Regulator General, 2000) the principal form of these cash flow adjustments appears to be through conservative (*ie*, enlarged) estimates of costs, and asset stranding was considered too unlikely to warrant adjustment. These experiences suggest that it is very difficult to make *ex-ante* adjustments for asymmetric risks.
- F5 If an *ex-ante* allowance is adopted, this could be done through a WACC margin or directly in the cash flows, and this gives rise to the question of which approach is better. In respect of the expected loss, a cash flow adjustment is the natural mechanism to use. Of course, there is always some discount rate adjustment that is equivalent to the cash flow adjustment, but it can never be determined until the cash flow adjustment is first articulated. Consequently, discount rate adjustments involve superfluous detail at best. At worst, they are undertaken without first establishing the appropriate cash flow adjustment, and therefore simply disguise the failure to ever articulate the appropriate cash flow adjustment. For these reasons, I strongly favour cash flow over discount rate adjustments for these issues; this is generally described as an "implied insurance premium". The ACCC (1999, 2001) also favours cash flow rather than discount rate adjustments. In respect of any systematic risk that arises here, a discount rate adjustment is appropriate and this will be captured in the estimate for the asset beta. In particular, the US and UK firms used to estimate the asset beta for the New Zealand lines businesses are exposed to such risks, and their estimated asset betas will reflect any systematic risk element. Thus,

and by contrast with the situation in respect of the expected loss, no additional action is required by the regulator.

- F6 In summary, allowances are clearly warranted in principle for certain types of asymmetric risks and failure to allow for these risks would violate the NPV test. Both *ex-post* and *ex-ante* allowances have drawbacks. However, if *ex-ante* allowances are adopted, they should be in the form of cash flow rather than discount rate adjustments.

Attachment G: Estimating compensation for bearing asset stranding risk

Dixit and Pindyck approach

- G1 We can convert the risk of asset stranding into a discount rate using learnings from Dixit and Pindyck. This can be modelled in one of two ways:
- Sudden death** – if the expected economic life of the asset is curtailed before the engineering life, what uplift in the discount rate is required to compensate investors. An alternative way of looking at this is to examine requests for an uplift to the WACC of a set amount – when would this imply the asset becomes worthless.
 - Exponential decay** – if the probability an asset is stranded follows a Poisson distribution, what discount rate would compensate the investor for that risk.
- G2 We note that we used this technique in the FPP for Chorus' unbundled copper local loop service and unbundled bitstream access services and in the 2016 review of the IMs determined under Part 4 when considering asset stranding risk but as a means to test the reasonableness of positions rather than to set an ex ante allowance to compensate for asset stranding risk.

Sudden death model

- G3 This methodology considers a project which performs well until an event occurs when it stops abruptly.¹⁵⁵³ If we let the initial price be P the value of the project is the discounted present value of expected profits over its lifetime.

$$\frac{P[1 - e^{-\delta T}]}{\delta}$$

- G4 This compares to the infinite life project where we let T tend to infinity – in other words the normal valuation of an infinite annuity

$$\frac{P}{\delta}$$

- G5 We can compare the first formula under different expected lifetimes to evaluate the impact of early asset stranding, we can then vary the discount rate to estimate the discount rate which compensates for a curtailed expected lifetime by ensuring that the present value of an annuity under different life times (and different discount rates) equate.

¹⁵⁵³ See Dixit and Pindyck (1994) Section 4.B pages 205 onwards

Exponential decay model¹⁵⁵⁴

- G6 This methodology values an asset using a depreciation path which has a random lifetime and this follows a Poisson process. Formally, at any time T , as long as the asset has not already ‘expired’, there is a probability λdT that it will expire in the next increment of time dT . This can be viewed as a project which produces less revenue over time or costs more to maintain over time.
- G7 From this we are given the cumulative probability distribution function of T is

$$1 - e^{-\lambda T}$$

The probability density function is

$$\lambda e^{-\lambda T}$$

The expected value of project with initial price P is

$$\frac{P}{(\lambda + \delta)}$$

Where δ is effectively the return shortfall created by the risk (or the discount required to compensate for it). It is also worth noting that λ is effectively a hazard rate (the probability that an asset will ‘die’).

Practical use

- G8 Both of these formulas essentially provide a way of estimate the lifetime value of projects given asset stranding risk and relate that back to the discount rate. Hence we can place different assumptions on the expected lifetime T or hazard rate of stranding risk and see how that affects the discount rate or where a discount rate has been suggested or is being considered – what that implies for asset stranding risk and whether those assumptions appear reasonable.

¹⁵⁵⁴ See Dixit and Pindyck (1994) Section 4.A pages 200 onwards.

Attachment H: Nelson-Siegel-Svensson approach to modelling yield curves

Purpose of this attachment

- H1 One of our final decisions for the methodology for calculating the debt premium is that we will also have regard to the NSS curve.
- H2 The purpose of this attachment is to provide information on our proposed NSS yield curve methodology and to demonstrate how we propose applying the methodology to estimate the debt premium. We note that the demonstration in this attachment relies on data specific to services we regulate under Part 4,¹⁵⁵⁵ and that this data will be specific to regulated FFLAS when determining the regulatory WACC for regulated FFLAS.

Summary

- H3 The Nelson-Siegel term structure approach is used extensively internationally by central banks and other market participants for modelling the interest rate term structure.
- H4 The framework allows for a yield curve with the ‘humped’ shape often associated with bond-yield term structures.¹⁵⁵⁶ We can include additional dummy variables in the model to account for the average level difference between bond ratings. These variables allow for an extended bond sample without significant skewing of the curve.
- H5 The NSS approach can objectively and transparently replicate the estimation of the debt premium over time and appears to achieve reasonable accuracy from our experience in Part 4. Therefore, the NSS framework appears well suited to modelling the debt premium for regulatory WACC determinations.

The Nelson-Siegel-Svensson framework to estimating the yield curve

- H6 Yield curves are used extensively by central banks, financial institutions and government organisations around the world to price assets, manage and allocate risk and design policies.
- H7 The yield curve can be used to display the relationship between term to maturity and bid-yields of bonds (or in this case the debt premium). The yield curve works through an estimation methodology to derive a curve based on observed values.

¹⁵⁵⁵ We regulate suppliers of electricity lines services, gas pipeline services, and specified airport services under Part 4. For the original attachment see Commerce Commission, “Input methodologies review draft decision: Topic Paper 4: Cost of capital issues” (June 2016), Attachment D, pages 247-258.

¹⁵⁵⁶ When ‘yield curve’ is used in this attachment, we are referring to a debt premium curve.

H8 The original framework was proposed by Nelson and Siegel in 1987 and later extended by Svensson in 1994. The Svensson extension improves the flexibility of the curve but comes at the cost of two extra parameters.

H9 The NSS model is defined as (**formula 1**):

$$DRP-t = \beta_1 + \beta_2 \left[\frac{1 - e^{(-\frac{t}{\lambda_1})}}{t/\lambda_1} \right] + \beta_3 \left[\frac{1 - e^{(-\frac{t}{\lambda_1})}}{t/\lambda_1} - e^{(-\frac{t}{\lambda_1})} \right] \\ + \beta_4 \left[\frac{1 - e^{(-\frac{t}{\lambda_2})}}{t/\lambda_2} - e^{(-\frac{t}{\lambda_2})} \right]$$

Where:

$DRP(t)$ is the debt risk premium;

β_1 is a constant term independent of the term to maturity, interpreted as the long-run yield of the curve;

β_2 impacts the beginning segment of the curve and is weighted by the term to maturity;

β_3 is weighted by term to maturity and adds a 'hump' to the curve;

β_4 is weighted by the term to maturity and allows for a secondary 'hump' to the curve;

λ_1 is a constant associated with the β_2 and β_3 terms;

λ_2 is a constant associated with the β_4 term;

t/λ_1 influences the weight functions for β_2 and β_3 , determining where the hump is observed in the curve (where t is the term to maturity); and

t/λ_2 influences the weight function of β_4 , determining the secondary hump.

H10 The parameters of the yield curve are estimated through minimising the squared deviations between the estimated yield curve and observed data points (ie, through optimising the beta and lambda parameters). The optimised parameters indicate the shape of the yield curve.

H11 Our draft decision is to extract bond data from Bloomberg and annualising it for use in debt premium estimation. Bonds with terms to maturity less than one year are not included in the dataset as these bonds can be affected by external factors.¹⁵⁵⁷

¹⁵⁵⁷ For example, see PwC "Electranet: Estimating the benchmark debt risk premium" (May 2012), page 13.

- H12 According to the European Central Bank,¹⁵⁵⁸ there are four main reasons for the popularity of the Nelson-Siegel model:
- c. the model is easy to estimate;
 - d. the yield curve can provide estimates for all maturities (ie, bonds not observable in the market);
 - e. factors have intuitive interpretation so that estimations and conclusions are easily communicated from the model; and
 - f. the model has been proven to fit data well.

- H13 Consistent with our draft decision for regulated providers, for an EDBs and GPBs the industry bond rating to estimate the debt premium is BBB+ rated bonds. This attachment demonstrates the NSS framework assuming the determination of an EDB/GBP debt premium but can be easily applied to regulated providers with the specified S&P long-term credit rating of BBB+.

Creating a bond sample with BBB, BBB+ and A- bonds

- H14 When creating a bond sample to for NSS curve estimates, our draft decision is to use a twelve-month averaging period. This time period is consistent with our draft decision for estimating the debt premium and appears to be a good trade-off between relevancy and robustness.¹⁵⁵⁹
- H15 To estimate a NSS yield curve requires a data set of suitable bonds. As BBB+ is the rating we would expect a benchmark regulated providers' bond to have, we would like our bond sample to centre around the BBB+ rating.
- H16 Our draft decision is to include majority government owned bonds in the sample to expand the number of observations.¹⁵⁶⁰
- H17 We can also include bonds from comparable companies with credit ratings within two credit rating notches of the BBB+ credit rating, ie, include BBB and A- bonds in the sample. This would expand the sample but at the cost of including bonds that potentially do not represent what a BBB+ benchmark yield would be.

¹⁵⁵⁸ European Central Bank (2008):
<https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp874.pdf?4b32dc2539d2598c420ec5e96a3891f7>

¹⁵⁵⁹ This is also consistent with the averaging period that we use in the Part 4 context when estimating an NSS curve for the debt premium.

¹⁵⁶⁰ In the assessment of the NSS curve for Part 4 in our 2016 IM review, we analysed that majority government owned bonds did not have a significant impact on the resulting debt premium estimate.

- H18 We attempt to mitigate the non-representative effects of these additional bonds with the use of dummy variables in the NSS estimation function.¹⁵⁶¹
- H19 In a 2013 Competition Economists Group (CEG) report,¹⁵⁶² it was discussed whether including bonds with similar credit ratings was a viable approach. By adding these additional bonds, it assumes that the shapes of similarly rated curves are the same. The only difference between the bonds would be the level of the curve (eg, the β_1 term for the A- yield curve would be smaller than that for the BBB+ curve). This was considered a reasonable assumption when the bond ratings are very close to one another.
- H20 By creating dummy variables to take into account the effect of the BBB and A- rated bonds, additional information can be used to inform our estimation of the BBB+ yield curve.
- H21 This gives us the new function including an additional two beta parameters (**formula 2**):

$$DRP(t) = \beta_1 + \beta_2 \left[\frac{1 - e^{(-\frac{t}{\lambda_1})}}{t/\lambda_1} \right] + \beta_3 \left[\frac{1 - e^{(-\frac{t}{\lambda_1})}}{t/\lambda_1} - e^{(-\frac{t}{\lambda_1})} \right] + \beta_4 \left[\frac{1 - e^{(-\frac{t}{\lambda_2})}}{t/\lambda_2} - e^{(-\frac{t}{\lambda_2})} \right] + \beta_5 BBB + \beta_6 A -$$

Where:

β_5 is a binary dummy variable for BBB rated bonds; and

β_6 is a binary dummy variable for A- rated bonds.

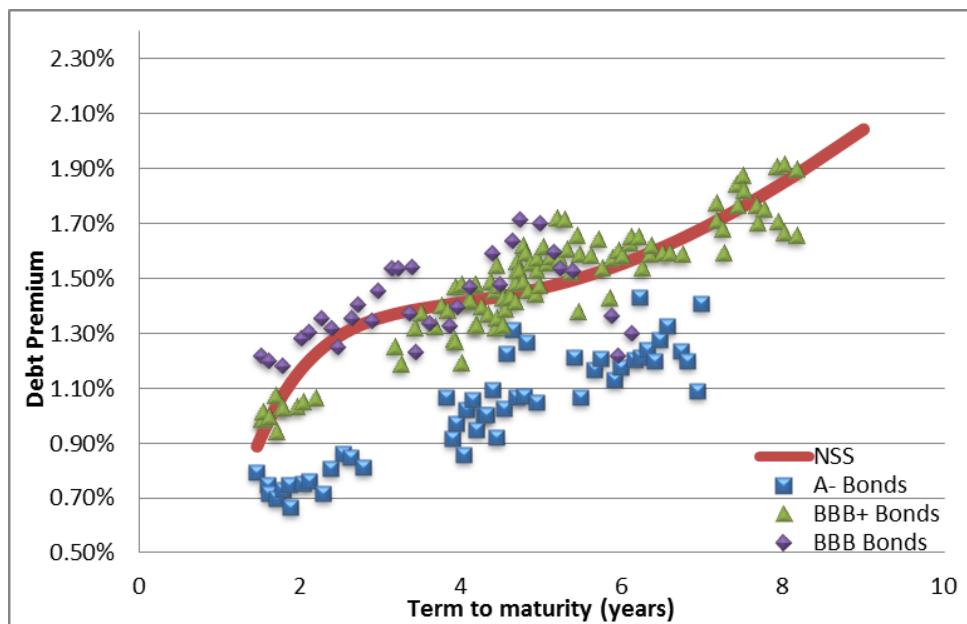
Example of applying a BBB, BBB+ and A- sample of bonds

- H22 This section demonstrates how the application of the NSS may apply to the fibre regime in the estimation of the debt premium. The examples used are from Part 4 when we introduced the NSS curve in the IM review.
- H23 Using dummy variables within the NSS framework (formula 2) provides the flexibility to include A- and BBB+ rated bonds; β_5 can be used to capture the average level shift difference in the yields of BBB bonds and β_6 the average level shift difference in the yield of A- bonds, from the benchmark BBB+ bonds.
- H24 Figure H.1 below demonstrates this. the BBB+ target rating yield curve (taking into account the effect of BBB and A- bonds) for estimating the debt premium using a 12-month sample of bonds. The higher rated A- bond debt premiums noticeably sit below the estimated BBB+ yield curve (and conversely the BBB bonds generally sit above).

¹⁵⁶¹ This is also consistent with the functional form used in the NSS curve estimation in the Part 4 debt premium estimations.

¹⁵⁶² Competition Economists Group "Estimating the debt risk premium" (June 2013).

Figure H.1: Adjusted NSS Curve (Jan 2015 – Jan 2016)



- H25 We note that the parameter values used in the estimation of the NSS model are generally consistent across time from our Part 4 experience (this will be reflected in a similar yield curve shape). Stable annual parameter values suggest a consistent yield curve shape when using our 12 month averaging periods.
- H26 In terms of implementing the NSS estimation, we note that the starting NSS parameter values can have a slight influence on the final parameter values when optimised (and therefore the final debt premium estimate). Therefore, we propose having set 'starting parameter' values so that estimates can be replicated and there is a consistent starting point.¹⁵⁶³
- H27 The Nelson-Siegel model is useful for our bond data; the functional form allows for flexibility to take on many different curve shapes. Therefore, the curve is able to be fitted to the data rather than enforcing a shape that may not be consistent with our data set of sample bonds. The Svensson extension allows for further flexibility of the curve to cater for different sets of data and different yield curve shapes.

Nelson-Siegel-Svensson assumptions

- H28 When generating the yield curves to estimate the debt premium, we have implicitly assumed that:
- liquidity of bonds (on-the-run vs. off-the-run) would have an effect on the bid yield to maturity and subsequent debt premium, but is not taken into account in the model';¹⁵⁶⁴

¹⁵⁶³ This is consistent with how we apply the NSS curve in Part 4 debt premium estimations.

¹⁵⁶⁴ On-the-run bonds are newly issued bonds and generally exhibit a lower yield and higher price compared with a similar term to maturity (already out in the market) off-the-run bonds.

- b. outer-rated bonds in the sample (BBB and A-) have the same general yield curve shape as the BBB+ rated bonds; and
- c. there is no significant difference between majority government owned corporate bond yields and private corporate bond yields.