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Fibre input methodologies: Draft decision - reasons paper



Project number: 16531

Associated documents

Document title	Published
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	19 November 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	21 May 2019
CEPA – Quality dimensions of wholesale fibre telecommunication services	9 November 2018

Foreword

Tēnā koutou,

Over the past decade a technology revolution has been happening beneath our feet.

By the end of 2022, the vast majority of New Zealanders will have access to ultra-fast fibre broadband, making the old copper phone and broadband network increasingly redundant.

Like other critical national infrastructure such as electricity networks, fibre networks are natural monopolies and it is our role to make them work well for consumers.

Put briefly, our regulation will counterbalance a monopoly's incentive to maximise profits at the expense of consumers. Without regulation, a monopoly's actions can result in short-term harm including consumers paying higher prices and receiving lower quality. In the longer term, harm can include sub-optimal levels of investment and efficiency gains, lower levels of innovation, or behaviour which attempts to limit competitors from entering the market.

Our regulatory regime for fibre networks will aim to align these incentives with the interests of consumers to enjoy high quality and affordable internet services.

We will do this by incentivising suppliers to improve their efficiency and invest and innovate – as would happen in a competitive market.

Key to creating a stable and predictable regulatory regime is designing the upfront rules, requirements and processes underpinning it.

For Chorus, regulation will take the shape of a revenue cap that will limit the price consumers pay for broadband, as well as set the minimum quality standards Chorus must deliver for things like customer service, service availability, and network performance.

Chorus and the other local fibre companies will also be required to publicly disclose information about their performance, indicators such as profits, quality of service, and expenditure, in what's colloquially known as 'sunlight regulation'.

This paper outlines our draft decisions on the upfront rules, requirements and processes that underpin these regulations. They have been shaped by extensive feedback from stakeholders since launching our invitation to comment on our proposed approach in November last year.

Alongside this work, we are also consulting on safeguards to protect consumers as New Zealand transitions away from the copper network. This includes ensuring that fibre is available to be installed at no cost before Chorus can choose to stop supplying copper services in neighbourhoods. We are also required to ensure vulnerable consumers have an appropriate way of contacting 111 in the event of a local power cut; fibre landlines may not work because they rely on power in the home.

I want to thank you for your ongoing constructive engagement in this process to ensure we create a robust and enduring regulatory framework. With consumers and businesses increasingly demanding ubiquitous, high speed internet connections to support an ever-expanding range of activities it's important we get it right.

We look forward to reading your submissions.

Ngā mihi nui

Stephen Gale

Telecommunications Commissioner

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Executive summary

- X.1 The Commerce Commission (**Commission**) is required to determine input methodologies (**IMs**) for regulated fibre fixed line access services (**FFLAS**) under Subpart 3 of Part 6 of the Telecommunications Act 2001 (**the Act**)¹ by no later than the implementation date (**1 January 2022**).
- X.2 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.
- X.3 We are seeking views on the Commission's draft decisions and reasons on the IMs for regulated FFLAS.
 - X.3.1 Our draft decisions on IMs for regulatory processes and rules are not included. We intend to publish our draft decision on these IMs separately in **March 2020**.
- X.4 We intend to publish our draft determination (the legal text which will reflect our draft decision) on **11 December 2019**. We currently expect to publish our final decision for the IMs in **July 2020**.

Our regulatory framework for IMs

- X.5 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.
- X.6 The IMs will underpin the two forms of regulatory control that must be in place by 1 January 2022.
 - X.6.1 **Price-quality (PQ) regulation:** 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'. We expect PQ regulation will only apply to Chorus Limited (**Chorus**).
 - X.6.2 **Information disclosure (ID) regulation:** each regulated provider will be required to disclose information on its performance delivering regulated FFLAS. We expect 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**).

¹ All statutory references in this executive summary are to the Act unless otherwise specified.

- X.7 The regulations under s 226, once made by the Governor-General, will determine the scope for the IMs, PQ regulation and ID regulation. These regulations will prescribe a person who provides FFLAS as being subject to ID regulation, PQ regulation, or both. They will also describe the services for which the person is subject to ID regulation, PQ regulation, or both.

The purpose of Part 6: Section 162 of the Act

- X.8 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. The purpose is set out in s 162.
- X.9 When making decisions, we are required 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. This requirement is set out in s 166(2).

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

- X.10 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).
- X.11 The economic framework includes three components: economic principles, an incentive framework, and a set of 'competition screening' questions we have developed. These components are outlined below.

Economic principles

- X.12 **Real financial capital maintenance (FCM):** a regulated provider has the *ex-ante* opportunity, but not a guarantee, to earn a normal return on capital.
- X.13 **Allocation of risk:** ideally, we allocate risks to regulated providers or consumers depending on who is most able to manage the risk.
- X.14 **Asymmetric consequences of over-/under-investment:** we apply FCM recognising any asymmetric consequences to end-users of regulated FFLAS, over the long-term, of under-investment versus over-investment. In many cases, this involves trading off the costs to consumer of promoting investment (ie, higher prices) against any expected benefits associated with reducing the risk of under-investment (such as improved quality).

Incentive framework

- X.15 We have also developed an incentive framework to help us evaluate how the regime may interact with the incentives faced by regulated providers and assist us in identifying risks to end-users. This helps us design the regime, and over time, review and refine it.

Competition screening questions

X.16 We have also developed a set of ‘competition screening’ questions that we have considered when developing our draft IMs. We will continue to consider these questions when evaluating regulatory options for PQ and ID regulation. These questions will help us assess whether our decisions might be relevant to competitive outcomes in telecommunications markets and specially, to promoting competition in telecommunications markets as required in s 166(2)(b).

Our draft decisions on the IMs

X.17 This section summarises our key draft decisions for the IMs for FFLAS as listed below.

- (a) Valuation of assets input methodology (**asset valuation IM**)
- (b) Allocation of common costs input methodology (**cost allocation IM**)
- (c) Cost of capital and risk input methodology (**cost of capital IM**)
- (d) Quality dimensions input methodology (**quality IM**)
- (e) Capital expenditure approvals input methodology (**Chorus capex IM**)²
- (f) Treatment of taxation input methodology (**tax IM**)

We have adopted a building blocks model

X.18 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.

X.19 We consider that the BBM approach is well understood in New Zealand, and sufficiently flexible to address implementation issues that might arise, and would likely give best effect to the purposes set out in s 166.

² 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.

Our position has evolved in some areas following consultation

- X.20 **Treatment of Crown financing:** Our draft decision includes a new method for calculating the financial losses during the fibre build period for Chorus and the other LFCs. The new method more accurately calculates the benefit received by these fibre providers of concessionary Crown financing and incorporates that into the valuation of their assets.
- X.21 **Tools to address the risk of asset stranding:** New technology or competition can reduce the value of a regulated provider's existing assets and technology; this is called asset stranding risk. Our emerging view was that asset stranding risk was potentially material and there are several options for how to deal with this. Our draft decision is to clearly allocate some of this risk to regulated fibre providers as they are best placed to manage it. In exchange for this allocation of risk, we will allow regulated fibre providers to mitigate this risk by letting them recover:
- X.21.1 their cost more quickly to prevent stranding (through shorter asset lives or alternative depreciation paths);
 - X.21.2 the cost of some (but not all) potentially stranded assets; and
 - X.21.3 a small allowance from end-users, designed to compensate the portion of the risk that firms bear which they are unlikely to fully mitigate.
- X.22 **Asset beta estimate:** Asset beta is a parameter used to compensate investors for the risk they cannot reduce by investing in other firms or sectors in the economy. In our emerging view we provided an asset beta range of 0.42 - 0.51 based on a sample of domestic and international comparator telecommunications firms. The asset beta estimate in our draft decision is 0.49. Submissions helped us and our advisers refine the comparator sample.
- X.23 **Tax adjusted market risk premium (TAMRP) estimate:** The TAMRP represents the additional return (adjusted for New Zealand tax) that investors require to invest in a market portfolio of average risk, instead of investing in safer - but lower yielding - government bonds. Despite this estimate being relatively stable over time, our emerging view was to re-estimate the TAMRP for our draft decision. Our draft decision includes a re-estimated TAMRP of 7.5%.

Key decisions for asset valuation IM

- X.24 Our draft asset valuation IM sets out the rules for how assets will be valued to form the unallocated RAB. The rules in the draft cost allocation IM are then applied to calculate the allocated RAB to be used for the BBM calculation and used for ID and PQ regulation. We have adopted a principles-based approach for our draft asset valuation IM, with specific rules to deal with specific situations where required.
- X.25 The draft IM applies consistent rules and processes across PQ and ID requirements, unless there is a reason for the approaches to differ. We have applied general accepted accounting principles (GAAP) in developing the rules, where these principles are consistent with the relevant regulatory objectives.

- X.26 Our draft decision is that assets will enter the unallocated RAB in the year they are first employed by the regulated provider in the provision of regulated FFLAS. Asset values are based on historical cost, net of capital contributions.
- X.27 The draft asset valuation IM also sets out some of the rules for how to develop the financial loss asset required by the Act. Our IM sets out that a building blocks approach will be used to calculate the financial loss asset capturing the losses built up during the pre-implementation period.
- X.28 The RAB roll forward is calculated as:
- $$\text{RAB (end of year)} = \text{RAB (beginning of year)} - \text{Depreciation} + \text{Revaluations} + \text{Capital Additions} - \text{Capital Disposals}.$$
- X.29 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 (e.g. Ducts that were previously used to provide copper services).
- X.30 Regulated providers subject to both PQ and ID regulation must apply, by default, a depreciation method consistent with GAAP. For PQ they can propose an alternative method for some or all assets if in the regulated provider's view this better promotes the purpose of the Act or is required for smoothing revenues. The Commission will assess the proposed depreciation as part of the PQ determination process.
- X.31 Under ID regulation regulated providers must apply and disclose the depreciation profile consistent with the PQ regulation determination that we will set before 1 January 2022. After the first regulatory period (2022 – 2024), the depreciation method approved for the previous PQ period is the default.
- X.32 Regulated providers only subject to ID regulation at implementation must apply as the default, a depreciation method consistent with GAAP, but may apply an alternative method if required for consistency with the applicable time profile of revenue recovery.

Key decisions for cost allocation IM

- X.33 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 PQ and ID.
- X.34 We have taken a principles-based approach for cost allocation, while having specific rules where required.
- X.35 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.

- X.36 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.
- X.37 When we calculate the past financial loss assets for the initial RAB we will include all costs that were solely employed for the Ultra-Fast Broadband (**UFB**) initiative. We will apply ABAA for shared costs and choose the allocators that we will use.
- X.38 Our draft IM includes rules intended to prevent potential double recovery of costs.
- X.38.1 Regulated providers must not double recover the costs shared with services regulated under Part 4.
- X.38.2 We do not have a cost allocation rule specific to double recovery for past losses.
- X.39 The regulated providers must update the measures and statistics used for allocation at least once every 12 months and review the choice of allocators at least once every 18 months. This approach is to reflect the dynamic nature of telecommunications.
- X.40 When establishing the initial RAB, each regulated provider must apply the same cost allocators as those used for calculating its financial loss asset. This is to provide increased certainty and simplify the work when establishing its initial RAB under ID.
- X.41 For PQ proposals, regulated providers must use the same (or a comparable) approach to preparing forecasts for regulated FFLAS and services that are not regulated FFLAS. These forecasts will be reviewed as part of the PQ review process. The cost allocation practices used in these forecasts must be applied to ID.
- X.42 Our draft decision excludes Court or other statutorily imposed penalties from operating costs incurred in providing the regulated FFLAS.

Key decisions for cost of capital IM

- X.43 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.
- X.44 The cost of capital IM sets out the rules and processes for us to estimate the cost of capital to be used in PQ and ID regulation – which is called the regulatory weighted average cost of capital (**WACC**). 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. Our draft decisions are broken down into components that we will calculate when estimating the regulatory WACC. The main components are the cost of debt, the cost of equity, and the proportion of each in the overall cost of capital.

- X.45 Debt is an important source of capital for many businesses. Our draft 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).
- X.46 We also propose allowing 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.
- X.47 In relation to the risk-free rate, our draft decision is that the IM specifies:
- X.47.1 the process and methodology for estimating the risk-free rate;
 - X.47.2 using the observed market bid yield to maturity of benchmark New Zealand Government NZ dollar denominated nominal bonds to estimate the risk-free rate;
 - X.47.3 using a prevailing rate approach to estimate the risk-free rate for the PQ path and ID requirements;
 - X.47.4 estimating the risk-free rate by averaging the observed market yields on the government bonds over three calendar months before the cost of capital is estimated (three-month determination window);
 - X.47.5 that the term of the risk-free rate will match the length of the regulatory period for the PQ path and ID requirements; and
 - X.47.6 that the risk-free rate will be updated for each cost of capital estimation, including annually for ID.
- X.48 Our draft decision for the debt premium is to use a simple benchmark approach for regulated FFLAS using a BBB+ credit rating. This simple approach uses a benchmark of credit-rated and publicly traded corporate bonds denominated in New Zealand dollars. We restrict this to New Zealand denominated bonds.
- X.49 When calculating the debt premium for the regulated FFLAS WACC, our draft decision is to apply a five-year average of the debt premium. In practice this means calculating a debt premium based on a 12-month window for each year and averaging across these estimates. We will also use bonds of a five-year term for estimating the debt premium for regulated FFLAS, which we will then apply a term credit spread differential (**TCS**) to, if regulated providers have issued debt for a longer term.
- X.50 Our draft decision is to provide an allowance for debt issuance costs of 33bps for a three-year regulatory period.
- X.51 Our draft decision is to calculate the TCS 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.

- X.52 The cost of equity is harder to estimate than the cost of debt. Our draft decision is to estimate the cost of equity using the simplified Brennan-Lally Capital Asset Pricing Model (**SBL-CAPM**).
- X.53 Our draft decision is to specify an asset beta for all regulated providers of 0.49. Combining this estimate with a notional leverage of 31% equates to an equity beta for regulated providers of 0.71.
- X.54 Our draft decision is to estimate the TAMRP at 7.5% from the time of our final IM decision. This estimate:
- X.54.1 best reflects the range of evidence available, including both historical returns and expected future returns; and
 - X.54.2 is consistent with the range of TAMRP estimates used by New Zealand market participants, including New Zealand investment banks.
- X.55 Our draft decision with respect to the TAMRP from before our final IM decision is 7.0%. We have arrived at this estimate because previous estimates of 7.0% over this period are the best evidence we have for the TAMRP relevant for fibre regulation under Part 6 because:
- X.55.1 the TAMRP is an economy-wide parameter, as such it is not subject to fibre specific considerations; therefore, our previous estimates of TAMRP for electricity lines businesses and gas pipelines businesses are relevant; and
 - X.55.2 our historical estimates also reflect a range of evidence from the same period as those estimates.
- X.56 Our draft decision is to use the mid-point estimate of the WACC for the purposes of PQ of regulated FFLAS. We do not propose applying an uplift to reflect asymmetric consequences of under-investment. We consider that applying this uplift 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.
- X.57 We also intend to publish the mid-point of the WACC and the standard error for the purposes of ID regulation of regulated FFLAS.

Key decisions for quality IM

- X.58 The draft quality IM specifies quality dimensions and associated quality metrics which will underpin the performance measures and statistics under ID regulation and quality standards under PQ regulation.

X.59 The draft quality IM includes seven quality dimensions and associated quality metrics.

X.59.1 **Six fibre lifecycle dimensions:** ordering, provisioning, switching, faults, availability and performance.

X.59.2 An overarching dimension: customer service.

X.60 The draft quality IM specifies that quality performance measures and statistics under ID and quality standards under PQ regulation must be specified for the quality dimensions of “availability” and “performance”. Further measures and statistics for ID, and standards for PQ, may also be specified for one or more of the other dimensions set out in the IM.

Key decisions for Chorus capex IM

X.61 Our draft Chorus capex IM sets the rules and processes for setting the capex allowance as part of the BBM calculation for PQ regulation. We have adopted an *ex-ante* propose and approve style approach to assessing and approving Chorus’ capex projects and programmes. The style of assessment will be a top-down assessment of capex. This assessment will be supported with a limited “bottom-up” review of selected projects and programmes as required.

X.62 The Chorus capex IM specifies three different expenditure categories. These categories are described as:

X.62.1 **Base Capex:** Chorus will submit a Base Capex proposal to be assessed by the Commission before a regulatory period. Base capex will incorporate all forecast capital expenditure except for those expenditure types that have a high degree of uncertainty of need, cost and/or timing, as described in the Connection Capex and Individual Capex categories below. The capex within the Base Capex proposal will be substitutable.

X.62.2 **Connection Capex:** Connection Capex is expenditure associated with the connection of end-user premises where the communal network already exists or will exist at the time of connection. This expenditure includes Chorus’ UFB initiative brownfield, greenfield and infill expenditure, and Chorus-led migrations from copper to regulated FFLAS. The approval of Connection Capex will be split into a baseline and variable component.

X.62.3 **Individual capex:** Individual Capex provides for larger projects and programmes (>\$5M), where the uncertainty associated with the expenditure means that it is hard to evaluate at the time of Base Capex approval. The Chorus capex IM specifies a staged application process for Individual Capex proposals which may be approved during the regulatory period.

- X.63 We will assess Base Capex proposals, Connection Capex proposals and Individual Capex proposals against a prudent network operator expenditure objective, along with clarifying evaluation factors outlined in the IM. The evaluation criteria will be applied as appropriate having regard to the risks and the need for oversight from the Commission. Our evaluation approach will reflect the different incentives and market factors applicable to Chorus versus firms operating under the Part 4 electricity regulations (such as Transpower New Zealand Limited).
- X.64 The Chorus capex IM specifies minimum information requirements for a Base Capex proposal. The Commission will also agree Regulatory Templates with Chorus before a Base Capex proposal is submitted. Different information requirements are set out for Connection and Individual Capex proposals.
- X.65 The Chorus capex IM specifies audit and certification requirements for the different categories of capex. Chorus will also be required to submit an independent verification report along with its Base Capex proposal and with Individual Capex proposals, proportionate to the materiality and complexity of the proposal.
- X.66 The Commission will be required to consult on Chorus' Base Capex proposal. The extent to which Chorus has undertaken its own consultation prior to submission will be an information requirement and an evaluation factor.

Key decisions for tax IM

- X.67 Our draft tax IM sets the rules for how tax costs will be calculated for PQ and ID regulation.
- X.68 Our draft decision is to use the tax payable approach to calculating tax costs for fibre service 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. The approach is also relatively simple and easy to understand.
- X.69 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.

We want to hear your views

- X.70 We invite submissions on this paper from all interested parties, including fibre service providers, retail service providers and end-users. We are seeking submissions on any and all aspects of our draft decisions.
- X.71 We have not identified specific questions for submitters so that submitters do not feel constrained on the matters they can discuss in their submissions. If possible, submissions should be structured according to methodology (in line with the structure of this document).

- X.72 Please make your submission via the Commission’s fibre IMs project page by **5pm 28 January 2020**.³ The project page will direct you to a form with instructions on how to upload your submission. Your submission should be provided as an electronic file in an accessible form
- X.73 We will then provide the opportunity for interested parties to provide views on the submissions on our paper by inviting cross-submissions. You will then have until **5pm 12 February 2020** should you wish to make a cross-submission.

Confidentiality

- X.74 The protection of confidential information is something the Commission takes seriously and in order to continue to protect confidential submissions we are trialling a new submission process. This will require you to upload your submission via the form on the project page. The process requires you to provide (if necessary) both a confidential and non-confidential version of your submission and to clearly identify the confidential and non-confidential versions.
- X.75 When including commercially sensitive or confidential information in your submission, we offer the following guidance:
- X.75.1 Please provide a clearly labelled confidential version and public version. We intend to publish all public versions on our website.
 - X.75.2 The responsibility for ensuring that confidential information is not included in a public version of a submission rests entirely with the party making the submission.
- X.76 If we consider information disclosed in the confidential version to be in the public interest, we will consult with the party that provided the information before any such disclosure is made.

³ You can find our fibre IMs project page here: <https://comcom.govt.nz/regulated-industries/telecommunications/projects/fibre-input-methodologies>

1. Introduction

- 1.1 This chapter introduces this Draft Reasons Paper (**paper**) by setting out:
- (a) the purpose and scope of this paper;
 - (b) how we have structured this paper;
 - (c) the overall process to determine input methodologies (**IMs**) and the role of this paper in that process;
 - (d) context for the regime – recent roll out of fibre networks in New Zealand; and
 - (e) information for interested parties on making a submission.

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).
- 1.3 This paper sets out our draft decisions and reasons on the IMs for regulated FFLAS specified in s 176 of the Act. These draft 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 We have not included the draft decisions and reasons on the IMs for regulatory processes and rules (**regulatory processes and rules IM**). We set out below how we intend to consult on these draft IMs separately later.
- 1.5 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. We are expecting that 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**).
- 1.6 All statutory references in this paper are to the Act unless otherwise specified.
- 1.7 Confidential information in this paper has been redacted and is shown as **[COI]**.

How we have structured this paper

- 1.8 Below we set out the structure for the rest of this paper.
- 1.9 **Chapter 2: The regulatory framework** provides our understanding of the regulatory framework and how we have applied this in reaching our draft decisions on the IMs.
- 1.10 **Chapter 3: Draft decisions and reasons for IMs** explains our draft decisions, set out by the methodology topics listed below.
- (a) Valuation of assets input methodology (**asset valuation IM**)
 - (b) Allocation of common costs input methodology (**cost allocation IM**)
 - (c) Cost of capital input methodology (**cost of capital IM**)
 - (d) Asymmetric risk⁴
 - (e) Quality dimensions input methodology (**quality IM**)
 - (f) Capital expenditure approvals input methodology (**Chorus capex IM**)
 - (g) Treatment of taxation input methodology (**tax IM**)
- 1.11 **Chapter 4: Next steps** sets out our intended process to reach our final decision on IMs.

Process to determine IMs

- 1.12 Below we have summarised the process we have followed to date, and the process we intend to follow going forward, to determine the IMs.⁵ This process is based on the statutory requirement contained in s 179.

Consultation process to date

- 1.13 To commence our process to determine the IMs, we published two documents in November 2018.
- 1.13.1 **9 November 2018:** An Invitation to comment on our proposed approach to the new regulatory regime for fibre (**proposed approach paper**).

⁴ Note: This does not form an IM topic itself but discusses decisions that are included in the IMs.

⁵ 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>

- 1.13.2 **19 November 2018:** A Notice of Intention for us to begin work on IMs for regulated FFLAS.
- 1.14 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 2022.⁶ The Minister granted this request on 23 November 2018.⁷
- 1.15 Since then, we have undertaken extensive consultation on the IMs, including:
- 1.15.1 **10 December 2018:** We hosted a stakeholder workshop to seek feedback on our proposed approach (materials published 19 December 2018).
 - 1.15.2 **4 March 2019:** We published an update on our process.
 - 1.15.3 **21 May 2019:** We published our emerging views on the IMs (emerging views paper).
 - 1.15.4 **25 June 2019:** We hosted a workshop on our emerging views (materials published 1 July 2019).
 - 1.15.5 **1 July 2019:** We ran a consumer focus group to seek feedback on our emerging views⁸ (summary of session published 16 July 2019).
 - 1.15.6 **19 August 2019:** We published a topic paper for the regulatory processes and rules IMs.

We established an expert panel for advice on technical matters

- 1.16 We set up an expert advisory panel to provide us with advice on complex issues that we face in developing the fibre input methodologies.
- 1.17 **Attachment J** sets out more information about the members of the panel, and their backgrounds.

Consultation process going forward

- 1.18 As outlined above, this paper sets out our draft decisions and reasons on the IMs for regulated FFLAS, except for draft decisions relating to the IMs for regulatory processes and rules, we will consult separately on those draft decisions later in our process.

⁶ Commerce Commission “Request for deferral in implementation deadline of fibre regulatory regime” (20 November 2018).

⁷ Hon Kris Faafoi “Re: Commerce Commission request to extend the implementation date for the new fibre regulatory regime” (23 November 2018).

⁸ You can find a summary of this session published alongside the submissions we received on the fibre emerging views paper: <https://comcom.govt.nz/regulated-industries/telecommunications/projects/fibre-input-methodologies?target=documents&root=105020>

- 1.19 We plan on undertaking the following steps ahead of determining the IMs:
- 1.19.1 **11 December 2019:** Publish the draft determination (which will reflect the draft decisions set out in this paper).
 - 1.19.2 **Date TBC:** We intend to workshop focussed on the Chorus capex IM following the publication of this paper, and the draft determination.
 - 1.19.3 **March 2020** (date TBC): Publish draft decisions on the regulatory processes and rules IMs.
 - 1.19.4 **May 2020** (date TBC): If required, publish a technical consultation, to seek stakeholder views on the text of an updated draft determination, to ensure it gives effect to our policy decisions.
- 1.20 We then intend to publish our final determination and reasons in **July 2020**. For the avoidance of doubt, we intend to include the regulatory processes and rules IM as part of the final determination.

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

- 1.21 This section explains the launch of the Ultra-Fast Fibre Broadband (**UFB**) initiative in 2009 and the extension to the UFB initiative in 2017.
- 1.22 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.
- 1.23 The UFB initiative was launched by the government in 2009.⁹ 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.
- 1.24 When the UFB initiative was initially launched, it was intended to cover 75% of New Zealand's population within ten years (i.e. by 2020).

UFB partners were selected through a tender process

- 1.25 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.
- 1.26 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.

⁹ 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.

- 1.27 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**).
- 1.28 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

- 1.29 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 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.¹⁰
- 1.30 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 (for example, customer support, in-home equipment such as Wi-Fi routers, corporate network services and access to the internet).

2017 UFB initiative extensions

- 1.31 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.
- 1.32 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 2022.¹¹ This means that the first regulatory period will be in place while UFB2 is being finished.

Information for interested parties on making a submission

We want to hear your views on our draft decisions

- 1.33 We invite submissions on this paper from all interested parties, including fibre service providers, access seekers and end-users. We are seeking submissions on any aspect of our draft decisions.

¹⁰ 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>

¹¹ You can find information on the UFB programme on the Ministry of Business, Innovation & Employment’s website: <https://www.mbi.e.govt.nz/science-and-technology/it-communications-and-broadband/fast-broadband/broadband-and-mobile-programmes/>

- 1.34 We have not identified specific questions for submitters so that submitters do not feel constrained on the matters they can discuss in their submissions. If possible, submissions should be structured according to IM (in line with the structure of this document).
- 1.35 We invite submissions on this paper from all interested parties, including fibre service providers, retail service providers and end-users. We are seeking submissions on any and all aspects of our draft decisions.
- 1.36 We have not identified specific questions for submitters so that submitters do not feel constrained on the matters they can discuss in their submissions. If possible, submissions should be structured according to methodology (in line with the structure of this document).
- 1.37 Please make your submission via the Commission's fibre IMs project page by **5pm 28 January 2020**.¹² The project page will direct you to a form with instructions on how to upload your submission. Your submission should be provided as an electronic file in an accessible form
- 1.37.1 We will then provide the opportunity for interested parties to provide views on the submissions on our paper by inviting cross-submissions. You will then have until **5pm 12 February 2020** should you wish to make a cross-submission.

Confidentiality

- 1.38 The protection of confidential information is something the Commission takes seriously and in order to continue to protect confidential submissions we are trialling a new submission process. This will require you to upload your submission via the form on the project page. The process requires you to provide (if necessary) both a confidential and non-confidential version of your submission and to clearly identify the confidential and non-confidential versions.
- 1.39 When including commercially sensitive or confidential information in your submission, we offer the following guidance:
- 1.39.1 Please provide a clearly labelled confidential version and public version. We intend to publish all public versions on our website.
- 1.39.2 The responsibility for ensuring that confidential information is not included in a public version of a submission rests entirely with the party making the submission.
- 1.40 If we consider information disclosed in the confidential version to be in the public interest, we will consult with the party that provided the information before any such disclosure is made.

¹² You can find our fibre IMs project page here: <https://comcom.govt.nz/regulated-industries/telecommunications/projects/fibre-input-methodologies>

2. Regulatory framework for IMs

Introduction

Purpose

- 2.1 The purpose of this chapter is to set out the regulatory framework we have applied in reaching our draft decisions on the IMs for regulated providers.

Outline of chapter

- 2.2 This chapter is structured as follows:
- 2.2.1 overview of the fibre regulatory regime;
 - 2.2.2 regulations under s 226;
 - 2.2.3 How we apply the regulation over time to matters that will vary;
 - 2.2.4 relevance and application of Part 4 of the Commerce Act 1986 (**Part 4**);
 - 2.2.5 purpose statements in the Act;
 - 2.2.6 key economic principles;
 - 2.2.7 incentives framework underpinning our application of Part 6 regulation;
 - 2.2.8 ID regulation and PQ regulation under Part 6;
 - 2.2.9 IMs under Part 6.

Overview of the regulatory regime

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

Key features of the regime

- 2.4 **Figure 2.1** outlines key features of the new regulatory regime for FFLAS, as specified in Part 6 and contemplated by the forthcoming regulations to be made under s 226. **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

The answer to this question is subject to the forthcoming regulations under s 226. At this stage, we assume:

- All Chorus' FFLAS will be subject to both PQ and ID regulation.
- All of the other LFCs' (Enable Networks, Northpower and Ultrafast) FFLAS will be subject to ID regulation only.

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 ID and PQ 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 three-five years.

Key features of PQ regulation

- A revenue cap, with a wash-up mechanism, will apply for at least the initial regulatory period, combined with individual price caps for any anchor service or Direct Fibre Access Service (**DFAS**) if declared in regulations under ss 227 and 228 of the Act.
- Quality standards, and any associated incentives, must be specified.
- Prices charged by a regulated provider for 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.

¹³ This figure is not comprehensive and is intended to provide a high-level summary only. It incorporates the necessary assumptions we have made about what will be included in the s 226 regulations which are explained below from paragraph 2.34 onwards.

¹⁴ https://comcom.govt.nz/data/assets/pdf_file/0016/108250/Response-from-Hon-Kris-Fafoi-Request-for-extension-to-implementation-date-23-November-2018.pdf.

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.
- 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 performance, changes in their 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.

Context: The Ultra-Fast Broadband initiative

- 2.5 This section discusses the Ultra-Fast Broadband initiative (**UFB initiative**) and its interaction with our regulatory framework under Part 6. The background for the UFB initiative is set out from paragraph 1.21 of **Chapter 1** of this paper.
- 2.6 Part 6 is a utility-style regulatory framework, with building blocks model (**BBM**) PQ regulation, modelled on the Part 4 framework.
- 2.7 While we recognise characteristics of FFLAS markets that exist from the UFB initiative, in our view, the historical requirements of the UFB initiative itself, are of limited relevance to the implementation of regulations under Part 6.
- 2.8 There are a few exceptions to this where the Act expressly directs us to consider requirements of the UFB initiative, such as calculating the initial regulatory asset base (**RAB**) under s 177 or specifying the initial points of interconnection (**POIs**) under s 231.
- 2.9 Initially, we recognise the characteristics of the market resulting from the UFB initiative, such as the effect of Crown subsidies, discussed below; however, we expect this to reduce as the Part 6 framework develops and we move beyond the first regulatory period.

Government Policy Statement

- 2.10 In 2011, when it put the UFB initiative in place, the then 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 current government revoked the GPS.¹⁵

¹⁵ See the Gazette: <https://gazette.govt.nz/notice/id/2019-go4841>

Crown subsidies

- 2.11 The UFB initiative has featured subsidies from the Crown, in the form of loans on concessional terms and equity contributions. 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 (for example, quality might be higher and prices might be lower). In setting the fibre IMs, we have adopted the view that our decisions should take the presence of Crown subsidies to be part of the factual background for regulated FFLAS markets.

Fibre Deeds

- 2.12 It was a requirement of the UFB initiative that fibre providers offering services provided using networks developed (in whole or in part) with Crown funding give undertakings to the Crown. Given under Part 4AA of the Act and defined here as **Fibre Deeds**, they 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, the 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 UFB2.¹⁶
- 2.13 The concept of FFLAS is broad enough to cover all of the services supplied under the Fibre Deeds and those services could therefore be made subject to PQ regulation and/or ID regulation by means of s 226 regulations. Sections 206 and 230 also make provision for modifications to be made to the Fibre Deeds. Subject to any such modification, regulation under Part 6 may therefore apply 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.

¹⁶ The definition of 'equivalence' is set out in s 156AB and included in the glossary of terms appended to this document.

We will be required to make PQ path and ID determinations

- 2.15 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.
- 2.15.1 Under PQ regulation, we are required to determine the maximum revenue and/or prices a regulated provider is allowed to earn from its regulated FFLAS, as well as the quality at which regulated FFLAS must be provided. This is implemented through 'PQ paths'.¹⁷
- 2.15.2 Under ID regulation, each regulated provider will be required to disclose information in relation to its regulated FFLAS that allows us and stakeholders to assess whether the purpose of Part 6 is being met.
- 2.16 PQ paths and ID determinations, issued under s 170, will be underpinned by IMs—the development of which is the focus of this draft 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.
- 2.17 IMs, PQ regulation and ID regulation are explained in more detail later in this chapter from paragraph 2.206.

A building blocks approach for PQ and ID regulation

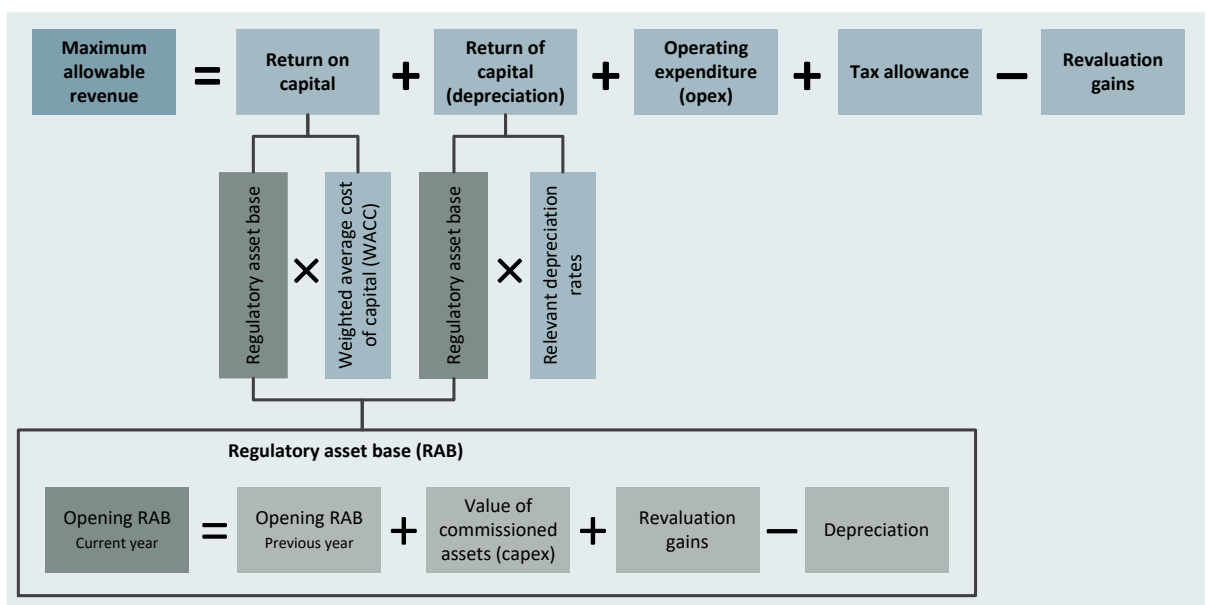
- 2.18 PQ regulation of utilities is often based on a BBM. BBM is an internationally recognised method of implementing PQ regulation, and has been adopted in the context of Part 4.
- 2.19 We also note that the framing of the legislation, together with background material (including the Minister's review of the telecommunications regulatory framework conducted under the now-repealed s 157AA), demonstrates that Parliament contemplated that we would adopt BBM under Part 6.
- 2.20 We have therefore adopted a BBM approach to developing our IMs under Part 6. We consider that the BBM approach is well understood in New Zealand, and sufficiently flexible to address implementation issues that might arise.
- 2.21 We consider that a BBM approach with a rolled-over RAB would likely give best effect to the purposes set out in s 166, to which we are required to give effect.

¹⁷ 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. During the period that the revenue cap applies, Chorus, subject to the Fibre Deeds, will be free to structure its prices for other FFLAS as it sees fit, provided that it complies with the overall revenue cap.

BBM approach for PQ regulation

- 2.22 Incentive-based BBM regulation seeks to create 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.
- 2.23 By setting this maximum revenue, the regime provides an ex-ante expectation that the regulated provider will achieve its allowed return. The allowed return under a BBM approach is the best estimate of the return that a firm could 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.¹⁸
- 2.24 The BBM approach is used to calculate the maximum allowable revenue (or prices) based on delivering the regulated services over the regulatory period.
- 2.25 **Figure 2.2** below shows an illustrative example of the components of a BBM calculation.

Figure 2.2: Calculation of annual maximum revenues under BBM



¹⁸ The 'strength' of these incentives can be altered by increasing or decreasing the share of any efficiency gain retained by the suppliers.

PQ regulation also includes quality standards set outside the BBM model

- 2.26 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 avoiding expenditure to upgrade the network, which could lead to a lower service quality than what end-users demand.
- 2.27 To manage this risk, Part 6 requires us to set PQ paths which also include quality standards. The setting of those standards will be underpinned by the quality dimensions IM. The PQ paths may include incentives on the regulated provider to maintain or improve its quality of supply.¹⁹ Note that the quality standards we set are not part of the BBM calculation. Our draft decision on the quality dimensions IM is set out in **Chapter 3**.

BBM approach for ID regulation

- 2.28 We can 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, and 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

- 2.29 Our draft decision is that the cost of capital IM will require us to determine and publish regulatory WACCs that we will use for ID and PQ regulation. As is the case with determining maximum allowable revenue under PQ regulation, under ID regulation, asset values, capex, and opex all need to be appropriately allocated to the particular type of service to which they relate.
- 2.30 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 2.155). Note that our ID analysis may not exclusively be ex-post. A further explanation of ID regulation is provided below.
- 2.31 Where returns are consistently higher than the cost of capital, this may imply that regulated providers are not appropriately limited in their ability to extract excessive profits (i.e. s 162(d)).

¹⁹ Section 194(3).

How IMs are used in a building blocks approach

- 2.32 The IMs set out our approach to calculating the building blocks shown in **Figure 2.2** and must be applied when we make PQ and ID determinations. For example:
- 2.32.1 The draft cost of capital IM sets out how the regulatory weighted average cost of capital (**WACC**) will be determined;
 - 2.32.2 the draft 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;
 - 2.32.3 the draft cost allocation IM sets out how asset values and operating expenditure will be allocated between regulated FFLAS and other services;
 - 2.32.4 the draft tax IM sets out how the tax allowance is calculated; and
 - 2.32.5 the draft Chorus capex IM sets out the requirements, criteria, timeframes and processes for evaluating capital expenditure projects.
- 2.33 As discussed in **Chapter 1**, this paper does not include our draft decision on the regulatory processes and rules IM. This IM will:
- 2.33.1 prescribe the specification and definition of prices and revenues, including what costs can be passed through to revenue or prices; and
 - 2.33.2 the circumstances in which a PQ path could be reconsidered within a regulatory period.

Regulations under s 226

- 2.34 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.
- 2.35 Regulations under s 226 must also describe the services in respect of which the person is subject to ID regulation, PQ regulation, or both.
- 2.36 Regulations under s 226, once made, will determine the scope for the IMs, PQ regulation and ID regulation. The regulations under s 226 will 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 maintain geographic consistency of pricing under s 201.

Procedural requirements for regulations made under s 226 before the first regulatory period

- 2.37 We anticipate that the first s 226 regulations will be made before the implementation date. Section 226(4) ordinarily requires the Commission to consult with interested persons and recommend to the Minister that regulations be made. Section 226(6) provides that the regulations can only be made to subject a regulated provider to ID regulation or PQ regulation 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.
- 2.38 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.

Our assumptions for the regulations under s 226

- 2.39 We have assumed for the purposes of our draft determination for the IMs that the first regulations made under s 226 will be as set out in the exposure draft of those regulations published by the Ministry of Business, Innovation and Employment (MBIE) on 6 June 2019,²⁰ as follows.

Persons subject to ID regulation

- 2.40 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	Column 2
Person subject to information disclosure regulation	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

²⁰ Ministry of Business Innovation & Employment, "Exposure draft of regulations to be made under section 226 of the Telecommunications Act 2001" (6 June 2019)

Persons subject to PQ regulation

- 2.41 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	Column 2
Person subject to price-quality regulation	Services subject to regulation
Chorus Limited	All FFLAS

Services subject to regulation

- 2.42 As set out in the exposure draft of regulations under s 226, we expect the services subject to ID and PQ regulation will initially be “all FFLAS”. For the purposes of our IM draft determination and within this paper, we refer to these regulated services as **regulated FFLAS**.
- 2.43 We expect the first s 226 regulations will be made prior to when we publish our final determination of the IMs (currently scheduled for June 2020). To the extent the final form of those s 226 regulations differs from the exposure draft outlined above, we will consult with stakeholders on the impact of any changes on the IMs.

Fibre fixed line access services

- 2.44 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 types of services offered by Chorus and the other LFCs that we regard as currently comprising FFLAS.

Key definitions

- 2.45 “FFLAS” is defined in s 5 as follows:

fibre fixed line access service—

(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)

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

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

2.47 “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

2.48 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.

2.49 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.

2.50 “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

2.51 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

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

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

Each of these points is addressed in the paragraphs below.

- 2.53 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.
- 2.54 The definition does not restrict telecommunication services to those delivered directly over a network. For example, we consider that the following services could come within the concept of telecommunication services:
- 2.54.1 new property services, such as development services, pre-wiring services and cable and duct fit-out; and
 - 2.54.2 network infrastructure services, including design, build and maintenance services.
- 2.55 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.
- 2.56 However, the definition of FFLAS includes other services that “enable access to, or interconnection with”, a regulated provider’s fibre network. This potentially captures 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.

Regulated FFLAS

- 2.57 The s 226 regulations will describe the services in respect of which a regulated provider is subject to ID regulation, PQ regulation, or both. As discussed above, based on the exposure draft of the s 226 regulations, we expect regulated FFLAS to initially cover all FFLAS.
- 2.58 As a result, where the s 226 regulations have not expressed or defined the scope of regulated FFLAS, we must assume a role in determining how FFLAS applies to our IM, PQ and ID determinations, including which particular services are regulated.
- 2.59 As set out from paragraph 2.53, we explained that FFLAS is focussed on the fibre network. However, the words “enable access to and interconnection with” in the definition of FFLAS in s 5 is broad enough to potentially extend beyond the fibre network, including services that sit outside the boundaries of the fibre network.

- 2.60 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.
- 2.61 As matters currently stand, based on the types of services 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, with the exception of connection services that are necessary and proximate to the fibre network, such as co-location services at the POI.
- 2.62 Where a regulated provider’s telecommunication services are provided within the boundaries of its fibre network – for example, transport services supplied between network aggregation points, such as central offices, that exist between the user-network interface and the POI – we consider that those services are covered by the definition of FFLAS. We note that during Parliament’s consideration of the Telecommunications (New Regulatory Framework) Amendment Bill (**Bill**), which contained the provisions in Part 6, the Departmental Report to the Select Committee²¹ clearly stated that this was the policy intent:
- 2.62.1 “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”;²²
- 2.62.2 “the policy intent is to include services which extend past the point of aggregation within the FFLAS definition”;²³ and
- 2.62.3 “DFAS and Intra Candidate Area Backhaul (**ICABS**) are both FFLAS and will be subject to regulatory oversight under the new Part 6”.²⁴

²¹ Telecommunications (New Regulatory Framework) Amendment Bill: Departmental Report to the Economic Development, Science and Innovation Committee – Initial Briefing (10 April 2018)

²² Telecommunications (New Regulatory Framework) Amendment Bill: Departmental Report to the Economic Development, Science and Innovation Committee – Initial Briefing (10 April 2018) Appendix 2, page 2

²³ Telecommunications (New Regulatory Framework) Amendment Bill: Departmental Report to the Economic Development, Science and Innovation Committee – Initial Briefing (10 April 2018) Appendix 2, page 11

²⁴ Telecommunications (New Regulatory Framework) Amendment Bill: Departmental Report to the Economic Development, Science and Innovation Committee – Initial Briefing (10 April 2018) Appendix 2, page 20

Description of FFLAS

- 2.63 In light of our approach to defining FFLAS in the preceding paragraphs, these are the service types we consider to be FFLAS, where they meet the requirements, for the purposes of regulation under Part 6:
- 2.63.1 **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);
 - 2.63.2 **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);
 - 2.63.3 **Unbundled PON services:** Point-to-multipoint layer 1 fibre access services (including, but not limited to, PONFAS and unbundled fibre services);
 - 2.63.4 **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);
 - 2.63.5 **Backhaul services:** Layer 1 or managed throughput fibre services provided over the fibre network, to transport FFLAS between central offices and POIs (including, but not limited to ICABS, TES and inter-CO fibre services);
 - 2.63.6 **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);
 - 2.63.7 **Network services:** Network engineering and other services provided for a fibre network (including, but not limited to, network design build and maintenance services);
 - 2.63.8 **Property development services:** Services to develop properties, subdivisions, and non-building access points to support the provision of FFLAS (including, but not limited to, design, pre-wiring, cable and duct fit-out).

Exclusions

- 2.64 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

- 2.65 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). 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

- 2.66 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.
- 2.67 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.
- 2.68 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.
- 2.69 Copper-based telecommunications services will continue to be regulated under Parts 2 and 2AA of the Act.

Business line restrictions

- 2.70 Chorus is subject to line of business restrictions under both the Act and the Fibre Deeds, which prohibit it from participation in the supply of certain retail services, services above layer 2, and end-to-end services.²⁵
- 2.71 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 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.
- 2.72 The other LFCs have certain line of business restrictions in their respective company constitutions and the Fibre Deeds.

²⁵ Sections 69O, 69(R) and 69(S).

Specified points of interconnection

POIs

- 2.73 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.
- 2.74 "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
- 2.75 The specified POIs are where access seekers may locate their network routers, ethernet switches and 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.
- 2.76 POIs can be differentiated from network aggregation points, like central offices, which are connection points within the network, located closer to the end-user premises. A central office may be an active 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

- 2.77 As discussed at paragraph 2.73 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.
- 2.78 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.
- 2.79 POIs are also necessary for declaring specified fibre areas because s 69AB(6) defines a specified fibre service as FFLAS. We must therefore specify POIs before we carry out our first assessment of specified fibre areas, before 1 January 2020.²⁶

²⁶ Section 69AB(1).

Specified POIs under s 231

- 2.80 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.
- 2.81 Chorus has submitted that POIs should be specified at both the POIs and the aggregation points we discussed earlier in this section.²⁷ We do not consider that prescribing POIs at the layer 1 aggregation points on the network is consistent with the words of the Act. In our view, to specify POIs at different layers of a network is not consistent with the definition of a single 'fibre network' in s 5.
- 2.82 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.²⁸ 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 also a POI).²⁹
- 2.83 Our view is supported by the Economic Development, Science and Innovation Select Committee report on the Bill, which stated:³⁰
- 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.
- 2.84 For these reasons, 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.

²⁷ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019).

²⁸ 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.

²⁹ Network Infrastructure Project Agreement between Chorus and Crown Infrastructure Partners, 24 May 2011, at schedule 1 and annexure 2.

³⁰ Economic Development, Science and Innovation Committee, Telecommunications (New Regulatory Framework) Amendment Bill (4 May 2018), page 6

How we apply the regulation over time to matters that will vary

- 2.85 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:
- 2.85.1 Variations in scope of regulated FFLAS (including deregulation);
 - 2.85.2 The need for a wash-up mechanism for maximum revenues; and
 - 2.85.3 The need to smooth revenues/prices.

Variations in scope of regulated FFLAS (including deregulation)

- 2.86 New or amended regulations under s 226 may vary the scope of regulated FFLAS over time, through regulation and deregulation. This is a necessary and appropriate feature of Part 6, which recognises the dynamic nature of telecommunications markets.
- 2.87 In terms of deregulation, we will have a role in the future to review whether FFLAS should continue to be regulated. After the implementation date, under s 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.³¹
- 2.88 Following a review, we must make a recommendation to the Minister, who then can recommend to the Governor-General that services be excluded from regulation by making new s 226 regulations.
- 2.89 The ability for the scope of regulated FFLAS to vary over time will have implications for ID and PQ regulation, and we have considered this in reaching our draft IM decisions. We have set out two examples of this below:
- 2.89.1 The draft 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.
 - 2.89.2 The draft 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.
- 2.90 We are considering which PQ path re-opener provisions to include in our regulatory processes and rules IM. These re-openers might provide for situations such as any changes in scope to regulated FFLAS during a regulatory period.

³¹ Sections 210(4) and 226(3).

The need for a wash-up mechanism for maximum revenues

- 2.91 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 196.³²
- 2.92 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.

The need to smooth revenues/prices

- 2.93 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 we think it necessary or desirable to minimise any undue financial hardship to a regulated provider or to minimise price shocks to end-users.
- 2.94 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.

We will cover wash-up mechanisms and smoothing in our regulatory processes and rules IM draft decision

- 2.95 We will cover the need for (and form of) any upfront rules on wash-up mechanisms and revenue/price smoothing as part of our draft decision on the regulatory processes and rules IM.

Relevance and application of Part 4

- 2.96 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.³³
- 2.97 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.
- 2.98 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.

³² 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.

³³ Interpretation Act 1999, s 5; *Commerce Commission v Fonterra Co-operative Group Ltd* [2007] NZSC 36, [2007] 3 NZLR 767.

2.99 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 (**IM merits appeal**) also assists us to understand the purposes, functions and operation of the regulatory tools in Part 6.³⁴

2.100 There are important similarities between Part 6 and Part 4:

2.100.1 Both regimes acknowledge that where there is little or no competition and little or no likelihood of competition it may not be possible effectively to 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 and s 52A of the Commerce Act.

2.100.2 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 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.

2.100.3 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 building blocks 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 2.18 above, we have considered this question independently and come to the view that a building blocks approach is appropriate in Part 6 as well.

³⁴ *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289.

2.101 On the other hand, there are important differences between the two regulatory regimes:

2.101.1 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.

The language of this requirement is based on s 18,³⁵ and it means that, unlike Part 4, we are also directed to consider the direct promotion of competition in some circumstances.

2.101.2 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.

2.101.3 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 it has been prescribed in regulations. The Part 6 framework also provides for DFAS and unbundled fibre services to be specified in specific regulations.

2.101.4 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.

2.102 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, and cannot simply import the approach we have adopted under Part 4.

³⁵ 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.

2.103 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.

Purpose statements in the Act

2.104 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.

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

2.105 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:

- 2.105.1 The overall purpose of the Act, in s 3, is to 'regulate the supply of telecommunications services'.
- 2.105.2 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.
- 2.105.3 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.
- 2.105.4 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)).

2.106 We go on to discuss how we interpret and apply the purpose statements relevant to the IMs below.

The purpose statements in ss 162 and 166

2.107 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.

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

2.109 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.

2.110 Apart from the replacement of ‘consumers’ with ‘end-users’, this purpose statement is materially the same as s 52A of the Commerce Act.³⁶

³⁶ 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).

2.111 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

2.112 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.

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

2.114 In the IM merits appeal, the High Court discussed the purpose and operation of s 52A in detail. Given that s 162 was based on this provision, the High Court's analysis provides valuable guidance:³⁷

2.114.1 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.

2.114.2 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 2.151.2 below.

2.114.3 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.

³⁷ *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289, at [6] – [29].

2.114.4 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.

2.115 Consistent with the High Court's analysis, we consider that:³⁸

2.115.1 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.³⁹ 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.

2.115.2 The objectives in s162 (a) to (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,⁴⁰ 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,⁴¹ and must not treat any of the s 162(a)-(d) outcomes as paramount.⁴²

Interpretation of s 166(2)(b)

2.116 Section 166(2)(b) provides that, to the extent that we consider it relevant, we must take 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 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.

³⁸ 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).

³⁹ *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289 at [25] – [27].

⁴⁰ *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289 at [684].

⁴¹ *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289 at [1391] [1492].

⁴² *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289 at [684].

- 2.117 Section 166(2)(b), as enacted, was included in the 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.⁴³
- 2.118 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.
- 2.119 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.⁴⁴ 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.
- 2.120 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.

⁴³ Telecommunications (New Regulatory Framework) Amendment Bill (293—2), as reported from the Economic Development, Science and Innovation Committee, page 4

⁴⁴ Where fixed wireless access services are provided using DFAS, s 162 remains relevant.

- 2.121 There is also potential for infrastructure competition in the FFLAS market where an access seeker purchases a wholesale input from a regulated provider, and uses that 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 UFB2.⁴⁵ 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 therefore must consider the promotion of actual competition at different levels of the market.
- 2.122 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, including various forms of competition between access seekers, between the individual regulated providers, between fibre and other technologies, and between the regulated providers and access seekers. Our decision will further generally be 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).
- 2.123 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. 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

- 2.124 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).

⁴⁵ 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.

- 2.125 We must exercise our judgement on a case by case basis, but make the following observations about the relationship between the two objectives in s 166(2):
- 2.125.1 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.
 - 2.125.2 Section 166(2)(a) directs us to make decisions that best give effect to the purpose in s 162. This is a mandatory consideration.
 - 2.125.3 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.
 - 2.125.4 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).
- 2.126 We need to consider the potential benefits and detrimental effects 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.
- 2.127 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.

- 2.128 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 constrain market participants from extracting excessive profits from end-users and result in efficiency gains from improved productivity being shared with end-users over time.⁴⁶
- 2.129 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, 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).

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

2.130 This subsection explains our interpretation of the following key terms used in the purpose statements in ss 162 and 166.

2.130.1 End-users;

2.130.2 Workably competitive markets and workable competition.

End-users

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

2.132 “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)

2.133 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:

2.133.1 **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.

⁴⁶ These are the outcomes in s 162(d) and (c).

2.133.2 **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.

2.134 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

2.135 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 in markets for FFLAS under s 162 would be an end-user of a fixed wireless access (**FWA**) service 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.

2.136 As set out in paragraph 2.63, we explain 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

2.137 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 have current restrictions on selling FFLAS as a wholesale service and cannot sell FFLAS directly to retail customers.⁴⁷ Therefore the second part of the definition is particularly important to s 162 because it captures the retail end-users of FFLAS.

2.138 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. 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 or not an input comprising a telecommunications service that is not FFLAS is available. Therefore, end-user services will be “dependent” on a FFLAS whenever a FFLAS is used as an input to supply the end-user services, even where an alternative telecommunications service that is not FFLAS is available.

⁴⁷ For Chorus, see ss 69O and 69R. Refer to the constitutions of the other LFCs for similar restrictions. Also refer to clause 7 of the Fibre Deeds.

2.139 In interpreting the meaning of “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. 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.

Workably competitive markets and workable competition

2.140 The main purpose statement for 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.⁴⁸

Promotion of workable competition

2.141 We have not considered it necessary for the purposes of our draft decision to define more extensively 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 things.

2.142 We note that “promotion of 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. In our view, imposing a gloss on these words risks substituting new concepts for the clear words of the provisions of the Act.

2.143 We see s 166(2)(b) as focussing on creating conditions so that competition is able to thrive, and regulated 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.

⁴⁸ See from paragraph 2.124 for further discussion on ss 162 and 166(2)(b).

- 2.144 Rather, our focus will be on reducing, or eliminating where possible, distortions in the market that might hinder the emergence of competition or regulated providers' ability to compete on the merits, where we consider this to be in 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.
- 2.145 It is 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' copper services in LFC areas.
- 2.146 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 when it is more apparent that market failures exist.

Workable competition and workably competitive markets

- 2.147 The High Court considered the meaning of workable competition in the course of the IM merits appeal.⁴⁹ There are three key conclusions that we see as relevant to the interpretation of workable competition in the application of Part 6.
- 2.148 First, the Court noted that there is no consensus on the precise conditions that define "workable competition", rather:⁵⁰

... 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.

- 2.149 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:⁵¹

[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.

⁴⁹ *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289 at [6] – [27].

⁵⁰ *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289 at [13].

⁵¹ *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289 at [18] – [22].

[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.

2.150 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.⁵²

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

...

(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.

⁵² *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289 at [24].

(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?

2.151 In short:

2.151.1 a workably competitive market is one that provides outcomes that are reasonably close to those found in strongly competitive markets.

2.151.2 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.⁵³

2.151.2.1 **Productive efficiency** is present when producers use inputs in such a manner as to minimise costs, subject to technological constraints.

2.151.2.2 **Allocative efficiency** occurs when resources are allocated within the economy to the uses in which they have the highest value.

2.151.2.3 **Dynamic efficiency** 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.

2.152 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 efficient investment.

2.153 A number of attempts have been made to define criteria for workably competitive markets in the academic literature. Key performance criteria typically involve:

2.153.1 efficient production and distribution;

2.153.2 profits at levels just sufficient to reward investment, efficiency, and innovation;

⁵³ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (December 2010), at paragraph 2.5.8.

- 2.153.3 prices that encourage rational choice, guide markets toward equilibrium, and do not intensify cyclical instability;
 - 2.153.4 output levels and product quality (that is, variety, durability, safety, reliability, and so forth) that are responsive to consumer demands;
 - 2.153.5 success accruing to sellers who best serve consumers' wants; and
 - 2.153.6 appropriate exploitation of improved products and techniques.
- 2.154 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

- 2.155 This section introduces key economic principles that we have had regard to in reaching our draft decisions.
- 2.156 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

Interaction with the purpose statements of the Act

- 2.157 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).
- 2.158 This view is also 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.⁵⁴

⁵⁴ Some stakeholders, eg Spark, acknowledge in submissions that it cannot be assumed that the application of the economic principles will necessarily be consistent with the statutory purpose. See Spark "Submission on new regulatory framework for fibre" (21 December 2018), paragraph 56.

Decision-making framework

2.159 To decide whether we should adopt any economic principles for the Part 6 regime, we considered the extent to which the economic principles will:

2.159.1 help us make and explain our decisions; and

2.159.2 provide predictability to stakeholders.

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

2.160 Adopting a set of principles to guide decisions we make on the fibre 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).

2.161 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

2.162 We have decided to adopt the following economic principles to help us in developing and implementing the Part 6 regime.⁵⁵

2.162.1 **Real financial capital maintenance (FCM):** a regulated provider has the *ex-ante* opportunity to earn a normal return on capital – that being profits that compensate for its cost of capital over time, considering its exposure to risk. Allowing regulated providers the opportunity, but not the guarantee, of earning normal returns over the lifetime of an investment provides it with a chance to maintain the financial capital it has invested, therefore maintaining incentives to invest.

2.162.2 **Allocation of risk:** ideally, we allocate risks to regulated providers or consumers 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.

2.162.3 **Asymmetric consequences of over-/under-investment:** we apply FCM recognising any asymmetric consequences to end-users of regulated FFLAS, over the long-term, of under-investment versus over-investment.

⁵⁵ 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 draft decisions on the IMs for regulated FFLAS, which could be described as part of the policy intent for those particular Part 6 IMs. Where relevant, such principles are discussed in the chapter containing our draft decisions for the particular IM – eg, the proportionate scrutiny principle considered in the draft decisions for the capex IM. In this section, we are concerned only with the economic principles that have broad application across the Part 6 regime.

- 2.163 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

- 2.164 The three key economic principles provide useful guidance to us in giving effect to the purposes in s 166(2). 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.
- 2.165 FCM, for example, we use as a way of promoting s 162(a)-(d) outcomes that would be achieved in workably competitive markets—ie, in workably competitive markets firms expect 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 162.⁵⁶
- 2.166 We apply FCM recognising the asymmetric consequences of over-investment and under-investment to the long-term benefit of end-users and seek, where practicable, 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).
- 2.167 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 specifically⁵⁷) 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. However, 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 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.⁵⁸

⁵⁶ It is explicitly recognised in the provisions for determining the initial value of fibre assets set out in the Act 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.” (s 177(4)).

⁵⁷ See s 174 for the purpose of the IMs.

⁵⁸ Commerce Commission “Input methodologies review decisions: Framework for the IM review” (20 December 2016), paragraph 151-152.

2.168 We consider the three economic principles fit with our decision-making framework because they:

2.168.1 **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. Even though the principles' status means that they are not binding, proposals which deviate from these principles will raise the question as to how the proposal is better than any alternatives which are consistent with the principles. Further, frequent deviations from one or more of the principles may raise questions on their usefulness for the regime and might suggest that such principles are not appropriate.

2.168.2 **Provide predictability to stakeholders:** Stakeholders are familiar with these principles and supported their use in the Part 6 regime.⁵⁹ These three economic principles can also help provide cross-sectoral consistency, which will assist the predictability of the regime.

2.169 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:

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

2.169.2 can help promote the purposes in s 166(2) (see paragraphs 2.177, 2.180 and 2.187 below) and have proven useful in our experience in regulating markets under Part 4; and

2.169.3 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).

⁵⁹ For example, 2degrees "Submission on Commerce Commission fibre regulation emerging views paper" (16 July 2019), page 1 and page 6; Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraph 49; Enable, Ultrafast Fibre and Northpower Fibre "Submission on new regulatory framework for fibre" (21 December 2018), page 11; Trustpower "Trustpower submission: Fibre regulation emerging views" (16 July 2019), paragraph 3.4.1; and Vocus Communications "Fibre regulation emerging views" (16 July 2019), paragraphs 56-57.

Real financial capital maintenance

- 2.170 This principle is intended to provide regulated providers with the *ex-ante* expectation of earning a 'normal return'. This provides a regulated provider the opportunity to maintain the financial capital it has invested. This concept implicitly underpins the BBM.
- 2.171 FCM assumes that capital should be maintained in real terms.⁶⁰ 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.
- 2.172 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.⁶¹
- 2.173 The High Court supported the FCM principle in the IM merits appeal judgment. The Court observed that:⁶²

[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.

- 2.174 Under PQ regulation, the FCM principle is applied on an *ex-ante* basis—regulated providers are *expected* 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.

⁶⁰ 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.

⁶¹ 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.

⁶² *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289 at [256].

- 2.175 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*. 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

- 2.176 In practice, we expect to set the IMs to support the application of this principle at the beginning of each regulatory period:
- 2.176.1 by providing appropriate compensation to regulated providers for the risks they are required to manage; and
 - 2.176.2 by using estimates or forecasts of cost of capital, prudent expenditure and demand (where relevant), that are free of systematic bias.
- 2.177 The FCM principle, in combination with the revenue cap, roll-over of the RAB and periodic resets, can promote s 162. This is because:
- 2.177.1 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);
 - 2.177.2 regulated providers will be rewarded for superior performance (and penalised for poor performance), consistent with s 162(b); and
 - 2.177.3 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

- 2.178 The FCM principle is also relevant when setting the IMs relating to ID regulation.⁶³ 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 the outcomes produced in workably competitive markets.

Allocation of risk

- 2.179 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.

⁶³ 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.

- 2.180 Applying this principle in the context of FFLAS will help us to promote the Part 6 purpose:
- 2.180.1 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.⁶⁴ This is consistent with the outcomes in s 162(a) and (b); and
 - 2.180.2 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).
 - 2.180.3 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)).
- 2.181 Regulated providers could manage risk through:
- 2.181.1 actions to influence the probability of occurrence, where possible;
 - 2.181.2 actions to mitigate the costs of occurrence; and
 - 2.181.3 the ability to absorb the impact where it cannot be mitigated.
- 2.182 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.
- 2.183 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.⁶⁵
- 2.184 **Figure 2.3** below provides an example for how the risk allocation principle can be applied.

⁶⁴ 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.

⁶⁵ 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 2.3: 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.

- 2.185 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

- 2.186 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 should be recognised when applying the FCM principle.
- 2.187 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.
- 2.188 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.

2.189 We note that the dynamics of the markets regulated under Part 6 differ from the dynamics of those regulated under Part 4. This may 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, eg:

2.189.1 enforceable quality standards set under PQ regulation;

2.189.2 revenue-linked quality schemes implemented in PQ regulation; or

2.189.3 adjustments (such as an uplift) to the regulatory WACC.

2.190 In the context of the fibre IMs, the principle of asymmetric consequences of over-/under-investment is relevant mainly to our draft 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 3** where we discuss our cost of capital IM draft decisions.

Incentives framework underpinning our application of Part 6 regulation

2.191 The regulatory regime, implemented through the regulatory instruments prescribed by Part 6, aims to align the interests of regulated providers with the long-term interest of end-users (as specified in s 162).

2.192 As illustrated in the example in **Figure 2.4** below, without this alignment unregulated firms have incentives 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.⁶⁶

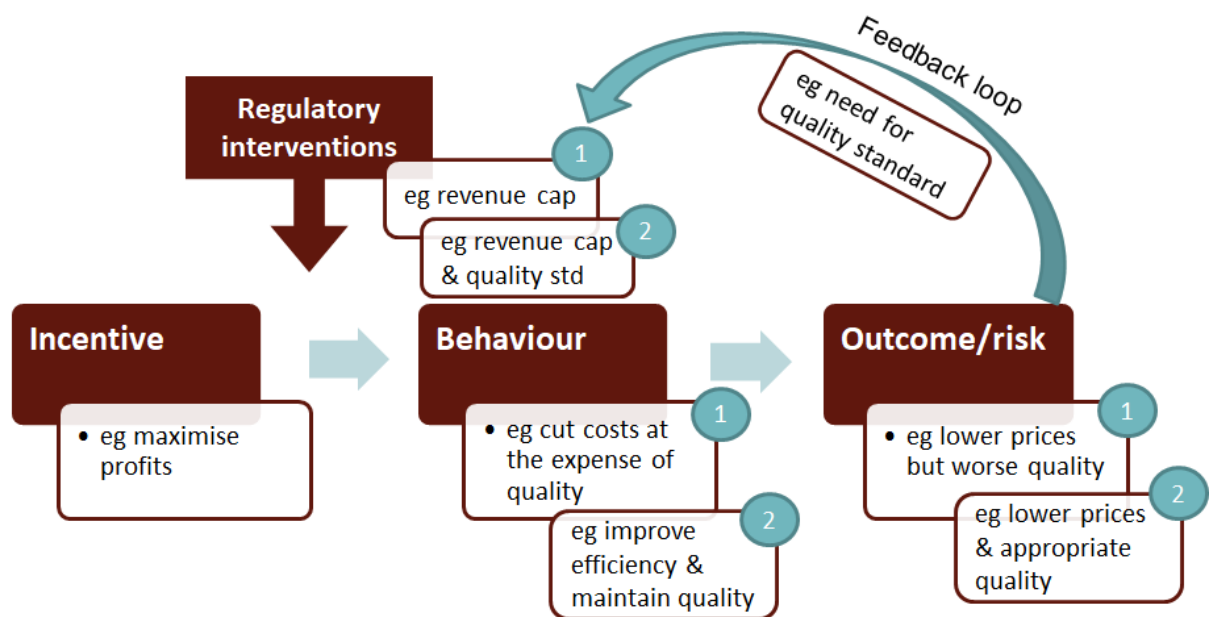
Figure 2.4: An unregulated monopolist may charge high prices



⁶⁶ The incentives mentioned in this paragraph relate to privately held profit maximizing firms. These incentives may differ for firms that are consumer owned.

- 2.193 In workably competitive markets, the alignment between the interests of firms and consumers tends to happen naturally, over time. We aim to mimic this outcome in markets we regulate through 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.
- 2.194 The design and implementation of the regime aim to make it in regulated providers' best interest to behave in a way that promotes the Part 6 purposes. At the core of our incentive regulation, the revenue and price paths introduce incentives for regulated providers to improve their efficiency (s 162(b)), including through innovation (s 162(a)). Our periodic resetting of the price paths ensures that end-users share in the benefits of any efficiency gains (s 162(c)), while limiting excessive profits (s 162(d)), similar to what would happen in a workably competitive market.
- 2.195 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 (s162(d)), among others.
- 2.196 Our incentives framework (partly illustrated in **Figure 2.5** below) helps us ensure we have a holistic view of how the regime may interact with the incentives faced by regulated providers and assist us in identifying risks to end-users. This helps us design the regime, and over time, review and refine it.
- 2.197 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 fibre IMs but is meant to be a tool used continuously in the regime design and implementation.

Figure 2.5: A regulated monopolist under a periodic revenue cap can increase profits by improving efficiency or degrading quality



2.198 In implementing the regime in a way that gives effect to the purpose of Part 6 at s 162, 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 (e.g. minimum quality standards or reporting of quality measures), the IMs (e.g. rules on cost allocation or scrutiny of expenditure forecasts), and how we combine all these instruments to determine allowed revenues – the BBM.

2.199 Within the wider regime context, IMs provide a number of key ‘inputs’ to ID regulation and PQ regulation. Relevant IMs in s 176(1)(a) combine with each other in 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.

2.200 Although each relevant IM is only part of a wider package, some types of IMs are aimed at addressing specific incentives that unregulated monopolists might have and are thus, more relevant to certain regulatory objectives in s 162(a) to (d) than to others. In particular:

2.200.1 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. In particular:

2.200.1.1 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 draft decisions, in conjunction with the requirements in s 177, establishes a baseline for the level of acceptable profits for a regulated provider and thus, 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) (see **Chapter 3: Asset valuation IM**);⁶⁷

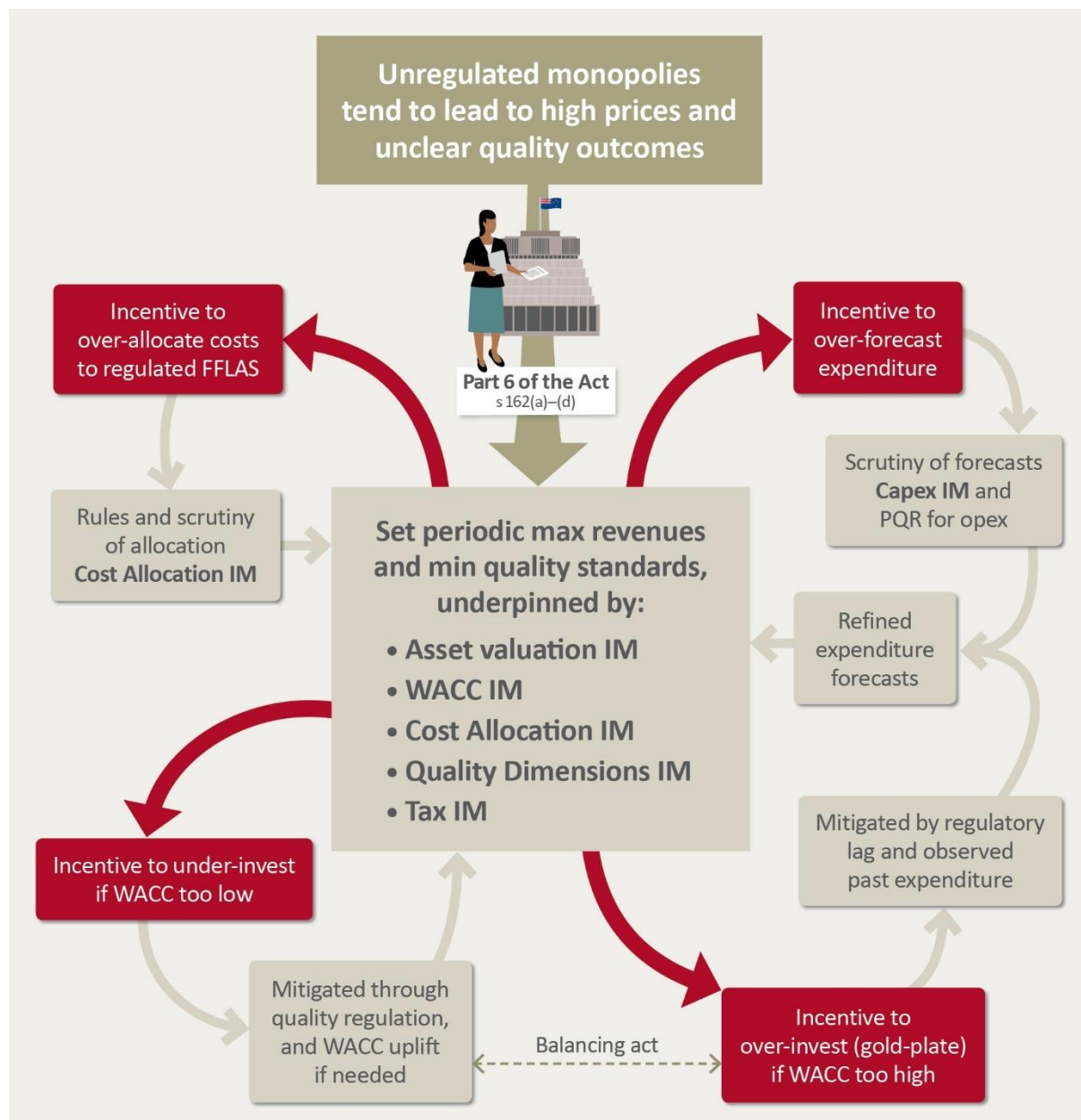
2.200.1.2 the way that the value of the RAB is rolled forward affects how regulated providers recover the investments that they make, which in turn reinforces the incentives to invest that they face, consistent with s 162(a) (see **Chapter 3: Asset valuation IM**);

2.200.2 the cost allocation IM has a role in mitigating the incentives that regulated providers might have to recover a disproportionate share of any shared network costs from FFLAS end-users (and thus, increase prices for FFLAS). In particular, the way that costs are allocated between regulated FFLAS and services that are not regulated FFLAS has an important bearing on how efficiency gains are shared with FFLAS end-users over time, which is relevant to s 162(c), as well as on limiting the ability of regulated providers to extract excessive profits, which gives effect to s 162(d). Further, allocating a disproportionate share of any shared network costs to regulated FFLAS could affect the competitive position of regulated providers in other markets they operate, and thus the cost allocation IM also has relevance for achieving the objective in s 166(2)(b) (see **Chapter 3: Cost allocation IM**);

⁶⁷ 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.

- 2.200.3 the cost of capital IM aims to balance two incentives: on the one hand, 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)); on the other hand, limit regulated providers' incentive and ability to extract excessive profits (s 162(d)). 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) (see **Chapter 3**: Cost of capital IM);
 - 2.200.4 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, and thus contributes to ensuring that regulated providers have incentives to supply FFLAS of a quality that reflects end-user demands, which is relevant to s 162(b) (see **Chapter 3**: Quality IM);
 - 2.200.5 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 3**: Chorus capex IM); and
 - 2.200.6 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 3**: Tax IM).
- 2.201 In line with the purpose of Part 6 at s 162, the regulatory rules introduced through the IMs (and later through our PQ and ID determinations) aims to better align the incentives of regulated providers with the long-term interests of end-users.
- 2.202 An example of how the IMs interact with the main consequential incentives that might arise for regulated providers subject to PQ regulation from the rules introduced by the regime is illustrated in **Figure 2.6**.
- 2.203 **Figure 2.6** is only an example of how we apply our incentive framework and does not capture all consequential incentives that regulated providers might face.

Figure 2.6: An example of how the regime mitigates the main consequential incentives caused by PQ regulation



2.204 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. For example:

2.204.1 the repeated nature of regulation allows us to observe through ID expenditure outturns over time, which lessens the incentive, and therefore risk, of regulated providers gaming the expenditure forecasts.

2.204.2 greater competitive pressure mitigates some of the incentives of regulated providers to behave in ways that are not in the long-term interest of end-users, which lessens the need for regulation – eg the incentive to under-invest at the expense of quality is weakened, since the regulated provider would then risk losing customers unsatisfied with the level of quality to competing firms supplying products based on alternative technologies.

2.205 Each of our draft IM decision chapters explains how the IM in question considers the relevant incentives and how it can help mitigate the main relevant risks to end-users.

ID regulation and PQ regulation under Part 6

Part 6 provides for ID regulation and PQ regulation

2.206 Part 6 provides for two types of regulation for FFLAS: ID regulation⁶⁸ and PQ regulation.⁶⁹ As discussed earlier, the regulations under s 226 will determine which regulated providers of FFLAS are subject to which types of regulation.⁷⁰ As discussed earlier in this chapter, the s 226 regulations have not yet been made, but we expect the following.

2.206.1 All of Chorus' FFLAS to be subject to both PQ and ID regulation.

2.206.2 All of the other LFC's FFLAS to be subject to ID regulation only.

2.207 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

2.208 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.

2.209 The IMs establish the rules and processes governing the various 'inputs' into the ID and PQ 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.

⁶⁸ Section 168.

⁶⁹ Section 169.

⁷⁰ Section 226(1).

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

Overview of ID regulation

2.211 ID regulation will require Chorus and the other LFCs to disclose specified information relating to their businesses and services which may cover a wide range of matters.⁷¹ It is governed by subpart 4 of Part 6, and the purpose is described in s 186:⁷²

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.⁷³

2.212 We will publish ID requirements in a determination made under s 170. Regulated providers will then be required to:⁷⁴

- (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.

⁷¹ 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* basis ('before the event') such as forward-looking plans.

⁷² Chorus and other LFCs are already subject to ID under s 156AU. The purpose of this ID is different to that which will be imposed under s 170. This information is not publicly disclosed and is focussed on promoting competition in telecommunications markets generally by ensuring that Chorus and the other LFCs provide reliable and timely information to the Commission to enable it to record over time the costs and characteristics of their fibre networks to inform our statutory processes and determinations.

⁷³ The purpose of Part 6 is set out in s 162.

⁷⁴ Section 187(1).

- 2.213 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 162.⁷⁵ Subpart 4 contains the provisions relating to ID regulation, including the requirements we must (or may) prescribe.
- 2.214 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.
- 2.215 The increased level of transparency resulting from public disclosure of information ensures that all stakeholders can assess the performance of regulated providers 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.
- 2.216 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.

Overview of PQ regulation

- 2.217 From the implementation date, we expect Chorus will also be subject to PQ regulation.⁷⁶ The purpose of PQ regulation is to 'regulate the price and quality of FFLAS provided by regulated providers.'⁷⁷
- 2.218 The PQ path will also include quality standards that Chorus must meet and may also include incentives for Chorus to maintain or improve its quality of supply.⁷⁸

⁷⁵ Section 187(2)-(3).

⁷⁶ As discussed in this chapter, this will be determined by the s 226 regulations.

⁷⁷ Section 192.

⁷⁸ Section 194(3).

- 2.219 The BBM approach, described in paragraphs 2.18-2.33, is based on the notion that workably competitive markets tend to produce prices or revenues that are based on costs. Where the revenue cap is based on the efficient costs of supplying FFLAS, this allows the regulated provider the opportunity to recover its efficiently-incurred costs and earn at least a normal rate of return on its investments.⁷⁹ 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).
- 2.220 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.
- 2.221 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.⁸⁰ 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.⁸¹ This promotes the outcomes referred to in ss 162(b) and (c).
- 2.222 Quality standards also have an important role in ensuring that regulated FFLAS are appropriate to meet end-users' demands, they 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, rather than greater efficiency. This helps achieve the outcome in s 162(b).
- 2.223 In determining the quality IM, we need to consider the relationship of that IM with the quality standards that will ultimately be set in PQ paths.

⁷⁹ *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.

⁸⁰ It is a-priori unclear how the resulting lower revenue allowance will flow through to the individual prices of different FFLAS, since regulated providers subject to PQ regulation have pricing flexibility for some 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 FFLAS.

⁸¹ 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).

IMs under Part 6

Purpose of IMs and the promotion of certainty

The purpose of IMs in the Act

2.224 Subpart 3 and s 164 of Part 6 set out what IMs are, how they are determined and how they apply. Section 174 provides that the purpose of IMs is:⁸²

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

2.225 Providing a stable and predictable regulatory framework was an important objective of Parliament in introducing Part 6.⁸³ This was also a key reason for the introduction of Part 4.⁸⁴

2.226 A certain and predictable regulatory environment is important because it assists regulated providers to make irreversible investments with increased confidence that they can 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 also make investment decisions based on their expectations of the way FFLAS will be regulated.

2.227 While increased certainty is important, Part 6 does not aspire to absolute certainty.⁸⁵ 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'.⁸⁶ We consider that a similar view should be taken in the context of Part 6.

⁸² This definition is based on s 52R of the Commerce Act.

⁸³ Telecommunications (New Regulatory Framework) Bill 2017 (293–1) (explanatory note) at 1.

⁸⁴ *Vector Ltd v Commerce Commission* [2012] NZSC 99, [2013] 2 NZLR 445 at [63].

⁸⁵ *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289, at [214].

⁸⁶ *Vector Ltd v Commerce Commission* [2012] NZSC 99, [2013] 2 NZLR 445, at [64].

2.228 In *Commerce Commission v Vector Ltd* the Court of Appeal stated:⁸⁷

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.

2.229 Some uncertainty remains inevitable. As the same Court of Appeal observed, certainty is a relative rather than an absolute value:⁸⁸

...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.

2.230 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 IM merits appeal.⁸⁹

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.

2.231 We consider that the above reasoning, while developed in the context of Part 4, is also applicable to the application of s 174 when setting the fibre IMs.

⁸⁷ *Commerce Commission v Vector Limited* [2012] NZCA 220, at [34].

⁸⁸ *Commerce Commission v Vector Limited* [2012] NZCA 220, at [60].

⁸⁹ *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289, at [165].

The role of IMs in promoting certainty

- 2.232 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.
- 2.233 To that end, IMs “as far as is reasonably practical”, set out relevant matters in sufficient detail upfront ie, prior to being applied by regulated providers or ourselves. In that 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.⁹⁰
- 2.234 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 regulated fibre service provider is reasonably able to estimate the material effects of the methodology on the provider”.
- 2.235 By way of example, the cost of capital IM does not ‘hard code’ the precise cost of capital that we will apply in setting PQ paths for future periods (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, where the precise values of some of the inputs to that formula will be determined by external factors (such as government bond rates) at the time the IM is applied. This approach provides certainty about the rules (i.e. 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 to set PQ paths at a future date), but still allowing the regulated provider to reasonably estimate the material effects of the IM on them.
- 2.236 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 indeed 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.
- 2.237 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.

⁹⁰ *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289, at [213].

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

2.238 The IMs are not the only way in which certainty is promoted within the Part 6 regime. For example:

2.238.1 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.⁹¹ Once set, a PQ path can only be reopened for one of the reasons specified in the IMs.⁹² Further, once set for a regulatory period, a PQ path cannot be reopened to take account of subsequent changes to the IMs.⁹³

2.238.2 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).

2.238.3 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:⁹⁴

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.

2.238.4 The various process requirements on the Commission in making decisions in relation to Part 6,⁹⁵ also enhance certainty.

2.239 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

2.240 '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

⁹¹ Section 207.

⁹² 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.

⁹³ 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.

⁹⁴ 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.

⁹⁵ See, for example, ss 179, 181 and 203.

2.241 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:
 - (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

2.242 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.

2.243 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, ID and PQ paths.

2.244 We discuss the relationship of IMs to ID and PQ regulation in more detail below.

Setting IMs

2.245 Section 178(1) requires us to determine IMs not later than the implementation date. Section 176(1) provides that the IMs must include certain matters to the extent applicable to the type of regulation under consideration.

2.246 These include cost of capital, asset valuation, allocation of common costs and treatment of taxation. The IMs must also cover quality dimensions,⁹⁶ regulatory processes and rules, and methodologies for the assessment of capital expenditure.

⁹⁶ Under Part 4, there is no requirement to determine an IM for quality dimensions.

- 2.247 We can determine additional IMs when we determine the mandatory IMs specified above. In addition, we may, at any time after the implementation date, determine further IMs.⁹⁷ We note that we only plan to determine the mandatory IMs for the first regulatory period. As discussed in **Chapter 1**, this paper does not include our draft decisions on the regulatory processes and rules IM; we expect to publish those draft decisions on in March 2020.
- 2.248 Section 176 provides us broad discretion as to the content and structure of IMs. In exercising our discretion in determining the IMs, we will have regard to all relevant considerations, including:
- 2.248.1 the matters described in s 166, which includes the Part 6 purpose (s 162);
 - 2.248.2 the purpose of IMs as set out in s 174;
 - 2.248.3 the purpose of ID regulation (s 186) and PQ regulation (s 192) (as applicable); and
 - 2.248.4 all submissions received from interested parties throughout the consultation process within any timeframes set.⁹⁸
- 2.249 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 will therefore have to specify how the relevant IMs apply in respect of ID regulation and PQ regulation.
- 2.248 We consulted in our emerging views paper on the question of the extent of our power to set IMs under s 176.⁹⁹ In doing so, we had regard to support from stakeholders for a fibre unbundling IM, which Vodafone stated is critical to the long-term success of the regime.¹⁰⁰ We also considered submissions, including from Spark and Nova, for IM guidance that addressed matters such as equivalence of inputs and non-discrimination.¹⁰¹
- 2.249 We have concluded that our power to set IMs is limited to IMs directly related to the implementation of PQ regulation and ID regulation. We base this on our interpretation of the relevant provisions – includes 170(2)(c), which requires us to specify the IMs that apply in respect of a s 170 determination, and s 175(a) which requires each regulated provider to apply relevant IMs in accordance with the s 170 determination. Section 170 relates solely to ID and PQ regulation determinations and Part 6 does not direct the Commission or regulated providers to specify or apply an IM for any other matters.

⁹⁷ S 178(2).

⁹⁸ S 179(2)(d)

⁹⁹ Commerce Commission "Fibre Regulation: Emerging Views" (20 May 2019), paragraphs 94-102.

¹⁰⁰ Vodafone "New regulatory framework for fibre: Submission on Fibre Regulation Emerging Views" (16 July 2019), page 4.

¹⁰¹ Spark "Fibre regulation emerging views: technical paper" (16 July 2019), page 17

- 2.250 Equivalence and non-discrimination requirements relevant to FFLAS are governed by Part 4AA and the Fibre Deeds. While our ID and PQ Determinations will interact, and be consistent, with these provisions, we do not consider it within our power to set IMs specifically for equivalence and non-discrimination requirements.
- 2.251 Sections 227 to 229 prescribe a process for the Governor-General, on the recommendation of the Minister, to declare an anchor service, DFAS, and unbundled fibre service in regulations. These provisions are specific to subpart 10 of Part 6, and the respective regulations will prescribe price and non-price terms for these services.¹⁰²
- 2.252 Setting an IM for regulated services under ss 227-229, including an unbundled fibre service, would not be consistent with the purpose and function of these provisions. An IM in respect of DFAS or an unbundled fibre service, if made prior to 2025, would conflict with the requirements of s 209, which prevents a review of these services by the Commission before 1 January 2025. However, the IMs will indirectly apply to services supplied under ss 227-229, to the extent that the assets used in the supply of these services, and the revenues generated by the supply of them, are covered by PQ and ID regulation.

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

- 2.253 We acknowledge stakeholders' request 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.¹⁰³
- 2.254 We determined that the most appropriate way to give effect to s 166(2)(b) at this stage of our regulatory development process will be to apply a high-level 'competition screening' by considering whether each IM decision:
- 2.254.1 has a potential to impact competition in any telecommunications market (in either a positive or negative way);
 - 2.254.2 has a role in mitigating risks to competition at any market level; or
 - 2.254.3 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.

¹⁰² See s 14(3)(4), s15(3) of Schedule 1AA and s 228(6) and s229(2)(d).

¹⁰³ For example, 2degrees "Submission on Commerce Commission fibre regulation emerging views paper" (16 July 2019), page 1; Trustpower "Trustpower submission: Fibre regulation emerging views" (16 July 2019), paragraphs 3.4.19-3.4.21; Vocus Communications "Fibre regulation emerging views" (16 July 2019), paragraphs 51-55; and Vodafone "New regulatory framework for fibre: submission on fibre regulation emerging views" (16 July 2019), page 7.

- 2.255 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, intended to:
- 2.255.1 help us make better decisions that give effect to the requirement of s 166(2)(b);
 - 2.255.2 help us explain our decisions; and
 - 2.255.3 provide predictability to stakeholders.
- 2.256 The questions 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 questions relevant to our ‘competition screening’, we will be transparent with stakeholders about the questions identified and how we have assessed their relevance.
- 2.257 Using the approach described above, we identified that the requirement to promote competition to the long-term benefit of end-users, per s 166(2)(b), has potential implications for the following IMs:
- 2.257.1 **Asset valuation IM:** the rules we set for the treatment of assets that might be affected by future deregulation (of either individual products or geographic areas) could have an impact on the development of competition in areas/markets that are deregulated. Our draft decision on the treatment of assets that might be affected by future deregulation is explained in **Chapter 3** at paragraphs 3.263-3.277.
 - 2.257.2 **Cost allocation IM:** the rules on how to allocate costs between regulated FFLAS and services that are not regulated FFLAS can affect the ability of regulated providers to compete in other markets they operate. For example, if Chorus is able to allocate the majority of the costs shared between regulated FFLAS and say the copper network to regulated FFLAS this could have an impact on the prices they could charge for copper services in the future. Similarly, any rules we might set on how to allocate costs between different regulated FFLAS could have a pro-competitive effect by allowing us to monitor, through ID regulation, the extent to which the prices of individual FFLAS products are set in line with costs and to identify any potential anti-competitive behaviour. Cost allocation rules could also help support a future move to cost-based pricing for the anchor product, DFAS and/or any other FFLAS products that we might consider appropriate. We explain our reasons for the specific rules we have set for cost allocation between regulated FFLAS and services that are not regulated FFLAS in **Chapter 3** at starting at paragraphs 3.381-3.451. We also explain in **Chapter 3** at starting at paragraphs 3.452-3.468 our reasons not to set specific rules

in the IMs for the allocation of shared costs between different regulated FFLAS, at least for the first regulatory period.

2.257.3 **Chorus capex IM:** 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. Similarly, the rules set for approving (capitalised) incentive payments (also known as retention capex) or DFAS-related investments could impact on competition between different platforms. However, the role of the capital expenditure IM in mitigating the competition risks is limited, since the approval process depends on capex proposals made by the regulated providers. The reasons for our draft decisions related to capex approvals are explained in **Chapter 3** starting at paragraph 3.1547.

2.257.4 **Quality IM:** the quality dimensions we set 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 and level of prescription we determine in our quality IM acknowledge that regulated FFLAS may be used as inputs for other services (e.g. DFAS connecting mobile cell sites is an input to mobile services) that compete with FFLAS-based services downstream. The reasons for our draft decisions related to quality are explained in **Chapter 3** at paragraphs 3.1434-3.1451.

2.258 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. The report outlines the steps that a fully-fledged competitive analysis could take in deciding whether:

2.258.1 a market has characteristics that might be conducive to the emergence of competition and thus, we might have a role in promoting competition in that market; and/or

2.258.2 a market might be sufficiently competitive that it could be a candidate for deregulation in the future.

2.259 The report is published on our website.¹⁰⁴

¹⁰⁴ Ingo Vogelsang and Martin Cave “Framework for promoting competition” (19 November 2019).

- 2.260 We took note of the framework proposed by the advisory panel in developing the practical steps for our 'competition screening' that gives effect of s 166(2)(b) for the IMs, but as explained below, we have not directly applied the framework 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.
- 2.261 We note that the fully-fledged competitive analysis of all potentially relevant markets suggested by the framework 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. At this stage of the regulatory process, we do not consider that the time and cost that we and stakeholders would have to spend on a full application of the framework developed by the panel would be commensurate with the potential benefits to end-users.
- 2.262 We note further that the regulatory setup in New Zealand 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.
- 2.263 The purpose of the Part 6 regime, including specifically under s 162, is to establish wholesale access to the FFLAS network on terms that mitigate the risks associated with monopoly power at the wholesale level and consequently promote the ability of an access seeker to compete on the merits in downstream telecommunications markets through:
- 2.263.1 access prices that are not excessive (s 162(b); (c) and (d)); and
 - 2.263.2 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)).
- 2.264 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 excessively jeopardize the current benefits to competition in downstream retail markets from the non-competitive but regulated FFLAS market.¹⁰⁵

¹⁰⁵ In submissions, stakeholders acknowledge 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.

2.265 Whether, on balance, 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 trade-off competition in another. 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.¹⁰⁶

Relationship of IMs and ID and PQ regulation

2.266 In the context of ID regulation, the matters covered by IMs in s 176(1)(a)—with the exception of some matters listed in s 176(1)(a)(iii)—are most relevant to the disclosure of financial performance measures, as well as the financial statements and other information that supports those measures (s 188(2)). In this respect, the key financial performance measure is ‘*return*’ on capital, which is dependent on actual *revenue* received from the supply of regulated FFLAS.

2.267 In the context of PQ regulation, the matters in s 176(1)(a) are most relevant to the setting of 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.

2.268 The matters covered by IMs in s 176(1)(b)—ie, quality dimensions—are relevant to setting quality standards under PQ regulation and reporting on quality performance under ID regulation.

2.269 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.

2.270 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.

¹⁰⁶ See paragraphs 2.124-2.129 above for our interpretation of how s 162 and s 166(2)(b) interact.

3. Draft decisions and reasons for IMs

3.1 This chapter explains our draft decision and reasons, set out by the methodology topics listed below.

3.1.1 Valuation of assets input methodology (**asset valuation IM**)

3.1.2 Allocation of common costs input methodology (**cost allocation IM**)

3.1.3 Cost of capital and risk input methodology (**cost of capital IM**)

3.1.4 Quality dimensions input methodology (**quality IM**)

3.1.5 Capital expenditure approvals input methodology (**Chorus capex IM**)

3.1.6 Treatment of taxation input methodology (**tax IM**)

Asset valuation IM

Introduction to the asset valuation IM

- 3.3 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. 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.

- 3.4 Our approach to asset valuation proposes that 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 historical cost of investments and will include a financial loss asset that captures unrecovered returns that have accumulated up to implementation date.

- 3.5 In this chapter we distinguish between the 'unallocated RAB' and the 'allocated RAB'. The application of the RAB—for example, in PQ regulation of regulated FFLAS—is generally only concerned with the value of the allocated RAB. However, to ensure the asset valuation IM and cost allocation IM work together, and to deal with the dynamic nature of the telecommunications market, the asset valuation IM also needs to consider the unallocated RAB. ¹⁰⁷

Summary of draft decisions for asset valuation IM

Key features of our approach to the asset valuation IM	
1.	A principles-based approach, with rules for specific situations where needed.
2.	A single asset valuation IM to be applied under PQ and ID regulation; rules, processes and requirements are consistent across forms of regulation, unless there is a reason for differing approaches.
3.	Adopting generally accepted accounting practice (GAAP) rules as part of the asset valuation IM where they are consistent with relevant regulatory objectives.

¹⁰⁷ The unallocated RAB value is the total asset value of assets used to provide regulated FFLAS, including the value of assets that are shared. The allocated RAB is 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.

Establishing the initial RAB

4. An asset will be eligible to enter the unallocated 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. The maximum value of the asset allowed in the allocated RAB is established in the cost allocation IM.
5. The initial value of an asset will be determined based on the historical cost of that asset, net of capital contributions.
We will not undertake any review of costs for assets constructed pre-implementation, and we will not revise the base cost of any asset to reflect future standards of efficient build after they enter the unallocated RAB.
6. Financial loss asset calculation:
 - 6.1 A building blocks approach will be used to determine the 'accumulated unrecovered returns' for each regulated provider from 1 December 2011 to implementation date.
 - 6.2 To ensure that actual financing costs incurred by a regulated provider in respect of Crown financing are taken into account, the financial loss calculation adds a separate building block in each period to account for the avoided interest or equity costs. The present value at implementation of the overall financial losses (i.e. the unrecovered returns which have taken into account the avoided financing costs in each period) is calculated using the conventional regulatory WACC for each year or part-year of the pre-implementation period.
 - 6.3 In calculating the unrecovered returns under the BBM
 - 6.3.1 The cost of assets acquired before the UFB initiative (ie pre-1 December 2011) will be included if they generated UFB revenues after 1 December 2011
 - 6.3.2 UFB opex will be defined as actual operating costs (opex) incurred in providing regulated FFLAS services under the UFB initiative;
 - 6.3.3 The portion of the costs attributed to UFB for assets or opex shared between the UFB Initiative and other activities will be determined by the cost allocation IM;
 - 6.3.4 The tax treatment will be determined by the tax IM;
 - 6.3.5 Cash flow timing factors will apply to each item in the calculation.
 - 6.4 Our draft decision is to determine the regulatory WACC for each year of the pre-implementation period based on:
 - 6.4.1 a risk-free rate that varies each year, with the term of the risk-free rate based on the number of years remaining until the implementation date;
 - 6.4.2 the debt risk premium prevailing at the beginning of the year in which the median loss is incurred, with the term equal to the remaining years until the implementation date;
 - 6.4.3 a TAMRP that is 7.0% for the period until the input methodologies are determined in 2020 and 7.5% for the remainder of the pre-implementation period;
 - 6.4.4 other parameters of the regulatory WACC are fixed across the pre-implementation period and do not differ between the pre-implementation periods and post-implementation periods.
 - 6.5 Our draft decision is to take into account the actual credit rating of the regulated provider, rather than the benchmark BBB+ credit rating, when we calculate the avoided interest payments used to determine the benefit of Crown financing.

Roll forward of the RAB

7. The RAB roll forward is calculated as:
- $$\text{RAB (end of year)} = \text{RAB (beginning of year)} - \text{Depreciation} + \text{Capital Additions} - \text{Capital Disposals} + \text{Revaluations}$$
8. 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.¹⁰⁸ This approach will apply to any fibre assets added post-implementation, including repurposed assets. The cost directly attributable and not directly attributable to regulated FFLAS is determined by applying the cost allocation IM.

Depreciation

9. The following rules apply to regulated providers only subject to ID regulation.
- 9.1 A regulated provider must ensure that the depreciation information disclosed under ID is consistent with the time profile of revenue recovery that applies at the time of disclosure
- 9.2 A regulated provider must apply as the default at implementation a depreciation method consistent with GAAP, but may apply an alternative method if required for consistency with the applicable time profile of revenue recovery.
- Where a regulated provider chooses an alternative method under ID, we intend to require regulated providers to disclose and explain the key assumptions, including how these differ from the default GAAP-consistent method.
10. The following rules apply to regulated providers subject to both PQ and ID regulation:
- 10.1 A regulated provider at implementation must apply as default a depreciation method consistent with GAAP.
- 10.2 A regulated provider can put forward in their PQ proposal an alternative method for some or all assets if, in the regulated provider's view, this better promotes the purpose of the Act; or is consistent with the smoothing provision (s 197).
- 10.3 Under ID regulation, a regulated provider must apply and disclose the depreciation profile consistent with the PQ regulation determination that applies in the year of the disclosure.
- 10.4 For a PQ proposal after the first regulatory period, the regulated provider must apply the depreciation method approved for the previous PQ period as the default.
- We intend to require the regulated provider will be required to explain its depreciation method. Where it chooses to apply an alternative method, it must demonstrate the impact of its chosen method relative to the default method.
- We will assess the proposed depreciation in the PQ proposal evaluation and will determine the depreciation approach in the PQ path determination.
11. The asset valuation IM provides for indexation of the RAB for consumer price index (CPI) inflation as part of the roll forward process.
12. Following a deregulation review under s 210 of the Act and a decision to deregulate by the Minister, the asset valuation IM will provide for the removal of the deregulated assets from the RAB (including a portion of the financial loss asset).

¹⁰⁸ An asset that has been employed to provide FFLAS for the first time may have pre-existing depreciation when it has been previously used to provide other services, such as a pre-existing duct system that has previously only served non-FFLAS services.

Other key components of the asset valuation IM

13.	Asset granularity. The IM provides for a minimum level of asset granularity.
14.	The IM provides for rules that apply to the sale and purchase of assets, based on applying the principle of FCM.
15.	The IM provides for appropriate treatment of intangible assets, vested assets, and network spares.

How we have structured this chapter

- 3.6 Relevant context for the asset valuation IM including:
 - 3.6.1 requirements of the Act;
 - 3.6.2 our decision-making framework;
 - 3.6.3 how our asset valuation IM decisions fit into the wider development of fibre IMs;
 - 3.6.4 application of the asset valuation IM to ID regulation and PQ regulation; and
 - 3.6.5 key features of our approach to the asset valuation determination.
- 3.7 Draft decisions and reasons in relation to establishing the initial RAB, comprised of:
 - 3.7.1 scope of the regulated asset base and its valuation;
 - 3.7.2 core valuation rules for initial RAB assets;
 - 3.7.3 limits on allocation of shared assets to regulated FFLAS;
 - 3.7.4 capital contributions; and
 - 3.7.5 calculation of financial loss asset.
- 3.8 Draft decisions and reasons in relation to the roll forward of the RAB, which include consideration of:
 - 3.8.1 roll forward mechanism;
 - 3.8.2 core valuation rules for fibre assets added after implementation;
 - 3.8.3 calculation of depreciation and financial loss asset amortisation;
 - 3.8.4 treatment of inflation; and
 - 3.8.5 adjustments to RAB following deregulation.

3.9 Draft decisions and reasons in relation to other key components of the asset valuation IM, including:

3.9.1 specification of asset granularity in the RAB;

3.9.2 treatment of intangibles;

3.9.3 sale and purchase of assets; and

3.9.4 treatment of vested assets.

Relevant context for setting the asset valuation IM

3.10 This section discusses the context for setting the IM, including the requirements under the Act and the relevant economic principles that will be considered in our discussion of the draft decisions on asset valuation.

3.11 It also outlines how our draft decisions on the asset valuation IM interrelate with other IMs for regulated FFLAS and how we envisage that they will be implemented through PQ and ID regulation.

Requirements under the Act

3.12 Section 176(1)(a)(ii) of the Act sets out the required content of the asset valuation IM:¹⁰⁹

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

Application of the IM for the valuation of assets

3.13 BBM regulation uses the concept of the RAB to represent a regulated provider's investment in capital assets. The RAB records the assets that are employed by the regulated provider to provide regulated services and the associated asset values.

3.14 The rules that govern the valuation of assets assist interested persons in assessing the profitability of a regulated provider under ID and allow us to determine maximum prices and revenues under PQ regulation.¹¹⁰

¹⁰⁹ Section 176(1)(a)(ii).

¹¹⁰ Asset valuation rules determine the level of the return on capital via application of the cost of capital, and the return of capital via depreciation (together referred to as 'capital costs').

Key considerations in determining the asset valuation IM

- 3.15 The decisions relevant to the valuation of assets can be thought of in two related parts. First, we must decide how the ‘initial’ value of the RAB is established at the start of the new Part 6 regime. Secondly, we must decide how the RAB value is ‘rolled forward’ over time (ie, updated year-on-year). Both these elements of the asset valuation exercise must be determined in accordance with the relevant statutory requirements.

Calculation of the initial value of fibre assets: Section 177

- 3.16 Asset valuation can be a challenging area to implement for utility-style regulation, particularly where the regulatory objectives are unclear, or where regulation is introduced part way through the lives of long-lived assets. Relevantly for asset valuation under Part 6 of the Act:

- 3.16.1 There is a clear purpose statement (see 3.22 below).
- 3.16.2 Section 177 contains detailed rules which direct us to value the initial fibre assets at implementation date as follows:
- 3.16.2.1 UFB initiative assets constructed or acquired by Chorus or the other LFCs prior to implementation date are valued at their depreciated cost.¹¹¹
- 3.16.2.2 Assets built before 2011 and therefore pre-date the UFB initiative, which have been used in the delivery of the UFB initiative for Chorus, are valued at their depreciated cost derived from Chorus’ general purpose financial statements.
- 3.16.2.3 Financial losses over the UFB initiative 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.¹¹²
- 3.16.3 The fibre networks in existence at the implementation date will be largely comprised of newly built UFB initiative assets. The costs of these assets have been the subject of considerable scrutiny from CIP (the company established to manage the Crown’s investments in fibre networks constructed under the UFB initiative, formerly known as Crown Fibre Holdings) and are supported by accounting records.¹¹³

¹¹¹ 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 (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.

¹¹² Refer to the calculation of the financial loss asset below

¹¹³ Refer to Chapter 1.

Treatment of the financial loss asset

- 3.17 The financial loss asset referred to above – similar to other assets in the RAB – will inform the profitability assessments under ID regulation, and the prices or revenues recovered over time by providers that are subject to PQ regulation. As the financial loss asset calculation is needed to establish the initial RAB value, this calculation is within the scope of the asset valuation IM during this transition phase to the new Part 6 regulatory regime.
- 3.18 The scope of the asset valuation IM for Part 6 is also necessarily wider than the Part 4 asset valuation IMs because the former is required to cover all of the regulatory building blocks that are needed to calculate the financial loss asset. Throughout this chapter our approach has been to discuss, where relevant, the rules for the financial loss asset calculation alongside those of the main RAB.

Decision-making framework

- 3.19 As with all of the IMs, the asset valuation IM is intended to promote certainty for regulated providers, access seekers, and end-users in relation to determining the asset valuation rules for ID and PQ purposes. The asset valuation IM does this by setting upfront rules, requirements, and processes regarding the way assets are valued; a key input to determining the rate of return on investment (consistent with s 174). Without the asset valuation IM there would be many open questions regarding how to determine the return on investment.¹¹⁴ The asset valuation decisions must promote the s 174 purpose and be those that we consider best give, or are likely to best give, effect to the s 166(2) purposes, in light of the function of the relevant regulatory instruments.

The promotion of the purpose of Part 6: section 162

- 3.20 The asset valuation IM seeks to mitigate the incentives of regulated providers to look for ways to increase profits above efficient levels. It does so by setting the rules for PQ 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 the allocated RAB appropriately reflects assets used in providing regulated FFLAS and, when applied under PQ regulation, end-user prices reflect the cost of those assets.
- 3.21 When applied in profitability assessments of regulated providers, the asset valuation IM contributes to providing insights into regulated providers' performance. Such assessments may be undertaken (and published) by the Commission or other interested persons using information published under ID regulation. Transparency of a regulated provider's performance may create incentives for those providers to act in a way that promotes the purposes of Part 6. This ensures that we best give or are likely to best give effect to the outcomes in section 162 discussed below.

¹¹⁴ 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.

- 3.22 We consider that the most relevant outcomes of the s 162 purpose for the asset valuation IM are:
- 3.22.1 S 162(a) – that regulated providers have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and
 - 3.22.2 s 162(d) – that regulated providers are limited in their ability to extract excessive profits.
- 3.23 The other outcome specified in the s 162 purpose are:
- 3.23.1 s 162(b) – that regulated providers have incentives to improve efficiency and supply FFLAS of a quality that reflects end-user demands; and
 - 3.23.2 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.
- 3.24 In our view, our draft asset valuation decisions do not generally directly promote the outcome in s 162(b) and (c). However, they are consistent with the overall regulatory approach, which itself promotes s 162(b) and (c).
- 3.25 We consider that our draft 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:
- 3.25.1 allows regulated providers to add assets to the RAB at implementation date at their depreciated cost – calculated in a manner consistent with FCM and thus, consistent with the way firms might value their assets in workably competitive markets. This reinforces incentives for regulated providers to invest going forward (s 162(a));
 - 3.25.2 allows for assets that pre-date the UFB initiative (which have been used in the delivery of the UFB initiative) to be included in the RAB at depreciated cost; and
 - 3.25.3 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 regulated providers’ ability to extract excessive profits (s 162(d)) when applied under PQ and ID regulation.

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

- 3.26 In reaching our draft 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 three questions listed at paragraph 2.254 to help us identify any implications that the draft decision could have for the current or future competitive conditions in telecommunication markets.
- 3.27 Using this approach, 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. To the extent that competition is thriving 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 draft decision on adjustments to the RAB following deregulation addresses this, and best gives effect to both s 162 and s 166(2)(b).
- 3.28 For all other draft decisions in the asset valuation IM, 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 would have any implications for our asset valuation decisions.

How these draft decisions fit into the wider context of setting IMs relating to the supply of regulated FFLAS

- 3.29 The asset valuation IM has close interdependencies with the cost allocation, cost of capital, Chorus capex and tax IMs.
- 3.30 We have considered the draft decisions of other IMs when making asset valuation decisions to ensure alignment between all decisions in the fibre IMs. For example:
- 3.30.1 the application of the asset valuation IM in PQ and ID regulation interacts with the cost allocation IM to ensure that assets existing at the inception of the regime that are directly or otherwise attributable to the regulated services contribute to the calculation of revenues or prices;
 - 3.30.2 the cost allocation IM requires the concept of allocated and unallocated RAB for ID and PQ regulation;
 - 3.30.3 the rules set by the tax IM have an impact on the rules set for the calculation of the initial value of the RAB and the roll forward RAB in the asset valuation IM;

- 3.30.4 the draft decisions made in the cost of capital IM on how we allocate risk and, where risk is allocated to regulated providers, how we compensate regulated providers for the risk they carry influenced several decisions in the asset valuation IM, eg, on the depreciation method, and the treatment of inflation.

Relevant economic principles

- 3.31 As explained at in **Chapter 2**, 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.
- 3.32 In developing the draft 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.¹¹⁵

Application of the asset valuation IM to ID and PQ regulation

- 3.33 This section outlines the way in which we propose that the asset valuation IM is to apply to:
- 3.33.1 ID regulation; and
 - 3.33.2 PQ regulation.

Application under ID

- 3.34 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.¹¹⁶
- 3.35 The information disclosed under ID must be consistent with the way prices have been set to allow profitability to be assessed by us and other interested parties.

Application under PQ regulation

- 3.36 The asset valuation IM will also apply to PQ regulation. The price path will provide an opportunity for a regulated provider to recover a portion of the RAB and loss asset, together with an appropriate return on capital.

¹¹⁵ 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.

¹¹⁶ Section 186.

- 3.37 The PQ path for regulated providers will be set based on a building blocks approach to determine their allowed revenue over the regulatory period. The RAB will be one of the building blocks. A PQ 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 (among other IMs).

Key differences in asset valuation rules between regulated providers subject to PQ and those subject to ID

- 3.38 The key differences in asset valuation rules between regulated providers subject to PQ regulation and those subject to ID only are:
- 3.38.1 decisions on certain choices (eg, depreciation) are made as part of the PQ regulation process, whereas under ID regulation information must be reported consistent with the IM; and
 - 3.38.2 regulated providers subject to only ID regulation must report in a manner consistent with the choices the entity makes to set pricing.

How PQ and ID regulation work together

- 3.39 The application of the asset valuation IM to PQ and ID is linked. For example, the value of actual commissioned capex will go into the ID RAB (and is updated on an annual basis). This then becomes the starting position for the PQ path in the next regulatory period.

Key features of our approach to the asset valuation IM

- 3.40 The key features of our approach to the asset valuation IM include:
- 3.40.1 adopting a principles-based approach, with rules prescribed for specific situations where needed;
 - 3.40.2 prescribing a single set of requirements that apply to regulated providers subject to both PQ and ID regulation, and those subject to ID regulation alone; rules, process, and requirements are consistent unless there is a reason for adopting differing approaches;
 - 3.40.3 allowing GAAP rules to be applied to implement our asset valuation decisions where the rules are consistent with relevant regulatory objectives.
- 3.41 As explained in further detail below, we consider this approach has resulted in an asset valuation IM that achieves an appropriate balance between certainty and flexibility, and that seeks to minimise compliance costs for regulated providers.

A principles-based IM supplemented by specific rules where required

- 3.42 We intend to adopt a principles-based approach with mostly general rules and certain specific rules prescribed where required. For example, we have taken a flexible approach to asset granularity, allowing regulated providers to determine the level of RAB disaggregation, but have set minimum requirements to meet current and anticipated regulatory needs.
- 3.43 The dynamic environment in markets regulated under Part 6, 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 more general 'rules' supplemented with detailed rules to meet specific requirements is appropriate for this environment.¹¹⁷ For example, prescriptive rules are appropriate to deal with certain scenarios, assets or legislative directions, for example the calculation of the financial loss asset.

Process for determining the initial RAB

- 3.44 The asset valuation IM will set the rules for valuing assets in the initial RAB for Chorus and the other LFCs. We do not propose that the IM contain details of the process for gathering data for this purpose. Instead, these processes will be worked through as part of the implementation of ID and PQ regulation.

A single asset valuation IM

- 3.45 We have developed a single IM that applies to both Chorus and the other LFCs. The IM rules are consistent unless there is a reason for differing approaches. In general, we found that different approaches are only required to provide for differences between forms of regulation.
- 3.46 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.¹¹⁸ This could be, for example, because the other LFCs are all significantly smaller entities than Chorus, with much fewer potential end-users passed.
- 3.47 On balance, we consider that the benefits of having a standard IM covering all entities outweigh the potential burden faced by the smaller LFCs. This will improve comparability of profitability between Chorus and the other LFCs and enable a smoother transition to PQ regulation if that becomes necessary.

¹¹⁷ An example of a general 'rule' is that assets would be eligible to enter the RAB based on the definition of regulated services.

¹¹⁸ For example, requirements could be simplified to minimise the investment required in existing systems to produce new data.

Regulatory rules and GAAP

- 3.48 We have considered the extent to which the asset valuation IM needs to provide for additional or different rules to those that already apply to regulated providers in their statutory financial reporting. Our approach to this IM is:
- 3.48.1 to adopt GAAP rules as part of the asset valuation IM where they are consistent with relevant regulatory objectives;
 - 3.48.2 where our regulatory treatment of assets is aligned with GAAP and there is a change to GAAP standards, our intent is that the regulatory rules and processes will provide rules for deciding:
 - 3.48.2.1 whether the PQ path should be reopened; and
 - 3.48.2.2 how ID requirements should be modified.
- 3.49 A key reason for adopting GAAP is that the statutory financial records currently maintained by regulated providers are based on GAAP, so 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. We discuss rules that are not in alignment with GAAP throughout the chapter.
- 3.50 The implication for the valuation of assets from changes to accounting standards, however, needs to be considered for fibre regulation under Part 6.¹¹⁹ We intend to consider this matter when determining the regulatory rules and processes IM.¹²⁰

Establishing the initial RAB

- 3.51 In the following section we will discuss our draft decisions with respect to the valuation of assets in the initial RAB. The initial RAB at implementation date will consist of assets employed to provide regulated FFLAS and a financial loss asset.

Scope of the regulated asset base and its valuation

Draft decision

- 3.52 Our draft 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.

¹¹⁹ 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).

¹²⁰ 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.

- 3.53 The IM provides a high-level rule to determine which assets will be included in the RAB, with more detailed rules prescribed by exception only where needed to meet regulatory objectives.
- 3.54 The rule, in line with the requirements of s 177, is that assets are eligible to be included in the RAB if they are:
- 3.54.1 constructed or acquired by a regulated provider;¹²¹ and
 - 3.54.2 in the year in which they are first employed (ie, ‘commissioned’),¹²² wholly or partly, in the provision of regulated FFLAS.¹²³
- 3.55 The assets that will be included in the RAB depends on the scope of services that are regulated FFLAS, declared in regulations under s 226. Regulated FFLAS and the s 226 regulations are discussed in more detail in paragraphs 2.42 to 2.43 of the regulatory framework chapter. In that chapter, we also set out the types of services currently provided by regulated providers that we consider to be FFLAS.

Rationale

- 3.56 It is not possible to foresee all types or specifications of assets that may be used to provide regulated FFLAS. Regulated providers should therefore not be limited in the assets that they can include in the RAB, provided the assets support a regulated FFLAS. By providing flexibility to include any assets— provided they are within the scope of regulated FFLAS—the IM ensures that regulated providers do not face disincentives to invest in the provision of FFLAS,¹²⁴ while being limited in their ability to extract excessive profits.¹²⁵
- 3.57 While we will not specify exactly which assets are to be included in the RAB, there are certain categories of assets that we will seek to specifically exclude for regulatory purposes. Refer to later in this chapter for more detail.
- 3.58 In areas with regulated FFLAS, Chorus is expected to commence decommissioning its copper network, incurring significant costs. We note that under the rules in the cost allocation IM, costs incurred solely in decommissioning assets formerly employed to provide copper (ie, telecommunications services that are not regulated FFLAS) services are not eligible to be treated as a cost of constructing or acquiring a fibre asset.¹²⁶

¹²¹ Section 177(1)(a).

¹²² In keeping with the definition of “fibre asset” in s 177(6) of the Act.

¹²³ We note that NZ IAS 16 at paragraph 55 says “(d)epreciation 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.”

¹²⁴ Section 162(a).

¹²⁵ Section 162(d).

¹²⁶ 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.

- 3.59 On the other hand, decommissioning may occur concurrently with other work, such as the reconfiguration and repurposing of other assets in the fibre network (such that the costs can be said to relate to both the provision of regulated FFLAS and telecommunications services that are not regulated FFLAS).¹²⁷ In these cases the cost allocation IM may permit a portion of the costs to be allocated to regulated FFLAS, subject to a cap based on unavoidable costs, see the cost allocation IM chapter.

Core valuation rules for initial RAB assets

Draft decision

- 3.60 Consistent with s 177, our draft decision is that:
- 3.60.1 The initial regulatory value of an asset will be determined based on the cost of that asset, net of specified capital contributions.
 - 3.60.2 We will not undertake any review of costs for assets constructed pre-implementation, and we will not revise the base cost of any asset to reflect future standards of efficient build after it has entered the unallocated RAB.¹²⁸

Initial value of assets

- 3.61 Section 177 of the Act provides that 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). It further specifies that, to avoid doubt, 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.¹²⁹
- 3.62 The Act directs that the cost of the asset is to be net of specified capital contributions.¹³⁰ The asset valuation IM provides for deducting the value of any contribution received from the cost of the asset before it enters the RAB, see below in this chapter.
- 3.63 We also note that regulated providers may have revalued their assets for GAAP or other accounting purposes, effectively modifying the original cost. Section 177(1)(b) directs us to ignore those revaluations.

¹²⁷ 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.

¹²⁸ The allocated RAB is established by applying the cost allocation IM.

¹²⁹ Section 177(5).

¹³⁰ Section 177(1)(a)(i). Refer to paragraph 3.73 onwards for a discussion of capital contributions.

- 3.64 The asset valuation IM specifies the rules for valuing the initial RAB. The ‘dollar value’ for the initial RAB will be determined, and any work needed to ensure the IM has been appropriately applied, will be undertaken as part of the PQ or the ID regulation processes.

Specific valuation rules for particular asset types

- 3.65 We have identified several areas that require departures from GAAP treatment for certain assets.¹³¹

No revisions to costs of assets for efficiency once the assets have entered the RAB

- 3.66 We will not undertake any review of costs for assets constructed pre-implementation, nor will we revise the base cost of any asset to reflect future standards of efficient build after they enter the unallocated RAB. Section 177 provides direction regarding how we are to calculate the value of initial fibre assets. In particular, it directs us to value assets at implementation at cost. The inclusion of s 177 in the regulatory regime is intended to remove areas for debate regarding the valuation of initial assets in the RAB. We do not consider it appropriate to have regard to efficiency in this valuation exercise, for the reasons set out below. Namely, 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).

- 3.67 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”.¹³²

- 3.68 In its cross-submission, Chorus discusses the efficiency of the roll out:¹³³

“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”.

- 3.69 While we recognise there may be some benefits involved in reviewing base costs of assets, 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.

¹³¹ 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.

¹³² Vodafone “Submission on new regulatory framework for fibre” (21 December 2018), paragraph 103.

¹³³ Chorus “Cross-submission on new regulatory framework for fibre” (5 February 2019), paragraph 63.

- 3.70 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.
- 3.71 We note that LFCs have incurred and capitalised incentive/retention costs in 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 will be assessed under PQ regulation in accordance with the relevant IMs, in particular the Chorus capex IM (refer to the Chorus capex IM Chapter).

Limits on allocation of shared assets to regulated FFLAS

- 3.72 As set out in the cost allocation chapter, when allocating costs between regulated FFLAS and services that are not regulated FFLAS, regulated providers must allocate shared costs using ABAA. 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.

Capital contributions

Draft decision

- 3.73 Our draft decision is that for regulatory purposes, “capital contribution” is a defined term which encapsulates all amounts received from third parties for the construction of an asset.¹³⁴
- 3.74 Our definition of capital contribution is based on the language of the definition of “capital contribution” from the electricity distribution businesses (EDB) IMs under Part 4. It is modified to prescribe the parties from whom a regulated provider may receive a capital contribution, and to specify that Crown financing is excluded, in order to incorporate the definition of “specified capital contribution” from s 177(6) of the Act.
- 3.75 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’).

¹³⁴ Crown financing is explicitly excluded from the definition of “specified capital contribution” under s 177(6).

Definition of capital contributions

3.76 Our draft decision is to define capital contributions as follows:¹³⁵

3.76.1 Capital contribution means money or the monetary value of other consideration charged to or received from access seekers, end-users or other parties for the purposes of asset construction, acquisition or enhancement. Crown financing (as defined in s 164 (1) of the Act) is not a capital contribution.

3.77 This definition incorporates the statutory definition of 'specified capital contribution' in s 177(6):

Specified capital contribution —

- (h) means a capital contribution that is received by a regulated 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;
 - (iv) but, for the avoidance of doubt, does not include any Crown financing.¹³⁶

The 'net approach'

3.78 In the emerging views paper we explained that we intend to determine the initial regulatory value of an asset based on the cost of that asset, net of specified capital contributions.¹³⁷ We noted that the Act directs 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 would deduct the value of any contribution received from the cost of the asset before it enters the RAB (referred to as the 'net approach').

¹³⁵ Based on the definition of "capital contribution" from Commerce Commission, "Electricity Distribution Services Input Methodologies Determination 2012, Consolidated Determination" (31 January 2019). IMs under Part 4.

¹³⁶ "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".

¹³⁷ Commerce Commission "Fibre regulation emerging views - Technical paper" (21 May 2019), paragraph 189.

3.79 Chorus and Spark supported our approach. In addition, Chorus also submitted that:¹³⁸

Capital contributions should be recognised consistent with accounting standards – whether the contribution is netted off the value of the asset or treated as revenue as it is more practical to implement.

Rationale

3.80 We consider our draft decision to adopt the net approach (ie, to deduct the value of any contribution received from the cost of the asset before it enters the RAB) will:¹³⁹

- 3.80.1 simplify the assessment of capital contributions as an input to the capex building block under PQ regulation;
- 3.80.2 improve the transparency of the information needed to assess the prudence and efficiency of capex forecasts. This transparency will help interested persons identify instances where regulated providers have made potential RAB additions that do not give best effect to s 162(d).

3.81 We understand that 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:

- 3.81.1 the net approach; and
- 3.81.2 the ‘income approach’, where capital contributions are treated as income.

Non-standard connections expressly excluded from definition of “capital contribution”

3.82 In its submission in response to the emerging views paper, Spark submitted that non-standard connections should be treated as capital contributions on the basis that they had been funded through a commercial arrangement with the Crown:¹⁴⁰

Where an asset has been created and a contribution made, in part, in lieu of contractual penalty or an in-kind contribution, this should be treated as a contribution and deducted from the cost of the asset. For example, Chorus’ approach to non-standard lead-ins was the result of commercial agreement with the Crown and that contribution should be deducted from the lead-in asset.

¹³⁸ Chorus “Fibre emerging views cross-submission” (31 July 2019), page 34.

¹³⁹ 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.

¹⁴⁰ Spark “Fibre regulation emerging views: technical paper” (16 July 2019), page 19.

- 3.83 We disagree with Spark's suggestion that non-standard lead-ins should be treated as capital contributions. Section 177(6) explicitly excludes Crown financing from the definition of "specified capital contributions". We consider that the commercial agreements in relation to non-standard connections fall within the definition of "Crown financing" under s 164, with reference to the broad definition of "UFB initiative" in s 5.¹⁴¹ Section 177(5) of the Act also provides, for the avoidance of doubt, that the initial value of fibre assets includes 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 and non-standard connections.
- 3.84 As discussed at paragraph 3.66, we do not consider that the Act, which directs us to value assets at implementation at cost, allows us to apply a review of the initial value of fibre assets. Section 177(1) directs us that the initial value of fibre assets must be based on their actual costs. The terms of the agreements between UFB initiative partners and Crown Fibre Holdings (CFH) regarding non-standard connections are likely to have included a range of terms and would require an in-depth review. In our view, conducting such a review would be beyond what s 177(1) allows us to do.¹⁴²
- 3.85 Further, to the extent that regulated providers have benefited, or will benefit, from concessionary Crown financing, our calculation of the financial loss asset and the intended treatment of the benefit of Crown financing following implementation will appropriately account for any benefit from Crown financing. This includes appropriately accounting for any benefit from Crown financing in relation to non-standard lead-ins.

Calculation of financial loss asset

Draft decision

- 3.86 Our draft decision in relation to the calculation of the financial losses incurred in providing regulated FFLAS under the UFB initiative for each regulated provider up until the implementation date is:
- 3.86.1 A building blocks calculation will be used to determine the accumulated unrecovered returns for each regulated provider from 1 December 2011.

¹⁴¹ Section 164 defines Crown financing 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. The UFB initiative is defined in s 5 " the competitive tender programme, known as the Ultra-fast Broadband Initiative, to develop fibre-to-the-premises broadband networks connecting 75% of New Zealand households, with the support of \$1.5 billion of Crown investment funding and includes UFB 2 and any other extension to the programme. The full definitions are provided in the glossary of terms appended to this document.

¹⁴² Refer to the CIP's 2012 and 2016 press releases announcing the non-standard lease agreements. www.crowninfrastructure.govt.nz/2012/11/01/free-ultra-fast-broadband-connections/ www.crowninfrastructure.govt.nz/2016/10/18/free-ufb-connections-continued/

- 3.86.1.1 UFB revenues will be subtracted from associated UFB costs for each year or part-year of the loss period to determine the shortfalls in revenues.
- 3.86.1.2 The present value of the shortfalls at implementation date will then be calculated by applying the regulatory WACC as the discount rate.
- 3.86.2 To ensure that actual financing costs incurred by a regulated provider in respect of Crown financing are taken into account, the financial loss calculation adds a separate building block in each period to account for the avoided interest or equity costs. The present value at implementation of the overall financial losses (i.e. the unrecovered returns which have taken into account the avoided financing costs in each period) is calculated using the conventional regulatory WACC for each year or part-year of the pre-implementation period.
- 3.86.3 When we calculate the avoided interest payments used to determine the benefit of Crown financing, we will take into account the actual credit rating of the regulated provider, rather than the benchmark BBB+ credit rating.
 - 3.86.3.1 Where the Crown financing is equivalent to debt then the benefit is calculated having regard to avoided interest payments.
 - 3.86.3.2 Where the Crown financing is equivalent to equity, then the benefit will be calculated using the cost of equity.
- 3.86.4 The regulatory WACC for each year of the pre-implementation period is determined based on:¹⁴³
 - 3.86.4.1 a risk-free rate that varies each year, with the term of the risk-free rate based on the number of years remaining until the implementation date;
 - 3.86.4.2 the debt risk premium prevailing at the beginning of the year in which the median loss is incurred, with the term equal to the remaining years until the implementation date;
 - 3.86.4.3 a TAMRP that is 7.0% for the period until the IMs are determined in 2020 and 7.5% for the remainder of the pre-implementation period;

¹⁴³ Refer to Attachment F - Regulatory WACC for calculating the financial loss asset.

- 3.86.4.4 other parameters of the regulatory WACC are fixed across the pre-implementation period and do not differ between the pre-implementation periods and post-implementation periods.
- 3.86.4.5 Our draft decision is to use to take into account the actual credit rating of the regulated provider, rather than the benchmark BBB+ credit rating, when we calculate the avoided interest payments used to determine the benefit of Crown financing.
- 3.86.5 In calculating the unrecovered returns under the building block approach:
 - 3.86.5.1 The cost of assets constructed before the UFB initiative (ie pre-1 December 2011) will be included if they generated UFB revenues after 1 December 2011;
 - 3.86.5.2 The portion of the costs attributed to UFB for assets or opex shared between the UFB Initiative and other activities will be determined by the cost allocation IM (including any pre-1 December 2011 assets);
 - 3.86.5.3 UFB opex will be defined as actual operating costs (opex) incurred in providing regulated FFLAS services under the UFB initiative;
 - 3.86.5.4 The tax treatment will be determined by the tax IM;
 - 3.86.5.5 Cash flow timing factors will apply to each item in the calculation.

Building blocks approach to calculating the financial loss asset

- 3.87 The financial loss asset will capture the accumulated unrecovered returns on investment from the beginning of the UFB rollout (1 December 2011) to implementation date (loss period). We will use a building blocks approach to calculate the unrecovered returns at implementation date for each of Chorus and the other LFCs.¹⁴⁴
- 3.88 The accumulated unrecovered returns are the sum of revenue shortfalls for each disclosure year (or part disclosure year) of the loss period, with each revenue shortfall adjusted to its present value as at the implementation date.

¹⁴⁴ This building blocks approach is broadly consistent with the building blocks approach we intend to apply post-implementation. Refer to regulatory framework chapter.

- 3.89 A ‘revenue shortfall’ for a disclosure year t (or part disclosure year) is determined in accordance with the formula:

$$\text{UFB revenues}(t) - \text{UFB costs}(t)$$

Where:

$$\text{UFB costs}(t) = \text{return on opening non-loss RAB} + \text{depreciation}(t) + \text{opex}(t) + \text{tax costs}(t)^{145}$$

Calculation of the financial loss asset

Conceptual basis for financial loss asset

- 3.90 The UFB partners – Chorus and the other LFCs – have incurred financial losses during the initial period of operation of the UFB network. This is because UFB partners made investments ahead of demand, and initial end-user uptake of UFB services and the associated revenues recovered in accordance with the UFB contracts was not sufficient to cover the fixed and/or variable costs that the UFB partners incurred during that period.¹⁴⁶
- 3.91 As part of the asset valuation IM, the Act requires us to capitalise these losses and to treat them at the implementation date as an additional asset to be included in the RAB (referred to as the “financial loss asset”).
- 3.92 The total RAB (including the financial loss asset) will provide the baseline for assessments of profitability under both ID and PQ regulation.

Relevant legislation

- 3.93 The Act sets out specific rules regarding the financial loss asset at the implementation date for Chorus and LFCs.
- 3.94 We are required to determine the financial loss asset under section 177(2), which provides:

Each regulated 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.

¹⁴⁵ Refer to Chapter 3: Tax IM for a discussion of the tax treatment in the loss asset calculation.

¹⁴⁶ Section 177(2) requires us to determine losses for “each regulated provider” at implementation date. Where a regulated provider has not participated in the UFB initiative prior to implementation date (and hence, has not made any accumulated unrecovered returns in the financial loss period or has not received any Crown financing as at the implementation date, the initial RAB value of the financial loss asset for a regulated provider will be determined by the Commission as nil).

- 3.95 Section 177(3)(a) provides that 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
- 3.96 As discussed above, we intend to use a building blocks approach to calculate the financial loss asset at the implementation date (which will incorporate the annual benefit of concessionary Crown financing over this period). This requires the Commission to determine the relevant revenues that were earned, and the revenues that should have been earned, less the annual benefit of concessionary Crown financing. The shortfall between these three components is the unrecovered returns. To calculate the returns that should have been earned we must calculate the costs of providing the UFB services, which, amongst other things, depend on the appropriate rate of return for this period.
- 3.97 Section 177(3)(b) is also relevant. It provides that in determining the unrecovered returns on investments the provider made under the UFB initiative, the Commission:
- (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)

Summary of the options presented in emerging views paper

- 3.98 In the proposed approach and emerging views papers we set out two methods by which to calculate the financial losses and, in particular, how each calculation would take account of the Crown financing.¹⁴⁷
- 3.98.1 Emerging views paper method 1: Subtract the value of the Crown-financed assets from the RAB when applying the required rate of return in the annual building blocks calculation, calculate the resultant losses for the relevant year, and then calculate the present value of those losses at implementation date.
 - 3.98.2 Emerging views paper method 2: Subtract the present value of the overall benefit of concessional funding from the amount of building blocks financial losses at implementation date.
- 3.99 In the emerging views paper, we proposed adopting method 1 because we considered it simpler to use and easier for people to understand.

¹⁴⁷ Commerce Commission "New regulatory framework for fibre - Invitation to comment on our proposed approach" (9 November 2018), pages 7.73- 7.74; Commerce Commission "Fibre regulation emerging views - Technical paper" (21 May 2019), paragraph 208.

Submissions in response to emerging views paper options

- 3.100 We received a range of submissions commenting on the determination of the financial loss asset.

Access seekers' focus: incremental cost

- 3.101 Certain access seekers, including 2degrees, Vector and Vodafone, submitted that financial losses should be calculated on an incremental or avoidable cost basis. Their submission is that were this approach not taken, it would result in Chorus and LFCs having an excessive RAB, which may lead to excessive profits, would produce results contrary to s 162(d) (which is focussed on ensuring that regulated providers are limited in their ability to extract excessive profits).
- 3.102 Similarly, Vodafone submitted that in its view, our proposed approach to calculating the financial losses could result in a windfall gain for Chorus. It submitted that in order to ensure that Chorus and LFCs are "neither punished nor excessively rewarded for their decision to participate in the UFB initiative", the losses would need to be set so that Chorus and LFCs are economically indifferent to the investment. In Vodafone's view, in practice this would require implementing an incremental cost calculation: limiting losses to those incremental costs directly incurred in providing UFB. In Vodafone's view, this approach would be consistent with how a firm in a competitive market would assess losses.
- 3.103 We disagree with the view that the financial loss asset should be calculated on an incremental or avoidable cost basis. The cost allocation IM provides the rules for determining costs directly and not directly attributable to regulated FFLAS. Refer to the cost allocation IM Chapter for the reasons for our cost allocation draft decisions.

Submissions on the cost of Crown financing

- 3.104 In the emerging views paper, we expressed the view that the actual cost of Crown financing was likely to be zero.¹⁴⁸ We took this view because there has been no actual financing charge applied.
- 3.105 In its submission on behalf of Chorus, Incenta argued that the cost of Crown financing could only have been zero for Chorus if the Crown had accepted a proportionate share of project risk. In Incenta's view, the average actual cost of Crown financing securities has been between 1.81% and 1.85% per annum during the pre-implementation period. Incenta submits that this rate of return should be applied to the Crown funded portion of the UFB initiative to reflect the 'residual risk' borne by Chorus.¹⁴⁹

¹⁴⁸ Commerce Commission "Fibre regulation emerging views - Technical paper" (21 May 2019), paragraphs 208.2; 541.

¹⁴⁹ Incenta "Chorus's actual financing cost for Crown-financed investment - Report for Chorus Ltd" (July 2019), at 5-6,19.

- 3.106 We consulted our adviser Dr Lally over the Incenta approach.¹⁵⁰ Dr Lally took the view that Incenta’s formulation of the cost of capital did not provide an estimate of the overall cost of capital, where each component is an expected rate of return or promised yield.¹⁵¹
- 3.107 Even so, Dr Lally agreed with Incenta that the emerging views paper method 1 was not the correct method for valuing the financial loss asset. The emerging views paper method 1 involved applying the WACC only to the portion of the RAB that was commercially funded, which is the same as applying a lesser value of the WACC to the total value of the RAB. As this lesser effective value of the WACC is not based on a weighted average of the costs of each type of capital, Dr Lally’s view is that emerging views paper method 1 is not an appropriate way of allowing for the relevant overall cost of capital.
- 3.108 In its cross-submission, Spark supported the Commission’s emerging views paper approach that the cost of Crown financing is likely to be zero.¹⁵² In Spark’s view, the provision of Crown financing reduced overall project risk.
- 3.109 Incenta also made submissions on the nature of the Crown financing received by Chorus.
- 3.110 We asked Dr Lally to review Incenta’s argument that Crown financing provided to Chorus is in substance all debt finance. In Dr Lally’s view:

Chorus would be unlikely to repay the “equity” by issuing preference shares to the Crown with a yield equal to the 180-day BB rate plus 6%. I also agree with Incenta’s analysis that leads to the conclusion that Chorus would be unlikely to repay the “equity” by issuing Chorus shares to the Crown at a 5% discount to the contemporaneous market price. Thus, Chorus would most likely repay the equity with cash matching the amount provided. I also agree with Incenta’s analysis that leads to the conclusion that the warrants issued to the Crown (in response to the Crown providing this financing) have minimal value relative to the finance provided by the Crown. Accordingly, the Crown finance is in substance all debt finance (at no interest) despite half being labelled “equity”.

¹⁵⁰ Dr Martin Lally “Review of submissions on the cost of capital for fibre network losses” (11 September 2019).

¹⁵¹ Dr Martin Lally “Review of submissions on the cost of capital for fibre network losses” (11 September 2019).

¹⁵² Spark “Fibre emerging view cross submission – Cost of capital and risk” (9 August 2019), page 8.

Our views on the nature of Crown financing

- 3.111 We accept two key points in Incenta’s submission and have reflected these in our draft decision:
- 3.111.1 Concessionary Crown financing to Chorus effectively allows it to avoid interest on a portion of its debt; and
 - 3.111.2 Emerging views paper method 1 understates the value of the loss asset for Chorus.
- 3.112 Accordingly, we have revised our approach, and our draft decision recognises that Crown financing has allowed Chorus, in substance, to avoid interest on an amount of debt. For other regulated providers, Crown financing may allow them to avoid costs, in substance, on an amount of equity, or a combination of avoided debt and equity costs. We therefore regard the benefit of Crown financing as the stream of avoided interest or equity returns, depending on the type of financing provided in substance by the Crown.
- 3.113 The emerging views paper method 1 effectively regarded the benefit of Crown financing as a stream of avoided returns on the same risk-adjusted cost and mix of debt and equity as faced by Chorus in its commercial financing. In light of submissions, we have concluded that this approach overstates the benefit of Crown financing by incorporating an equity element into the Crown financing, which as we have earlier said, is debt like in nature for Chorus.

Summary of financial loss asset calculation draft decision

- 3.114 Our draft decision, the so-called “building block method”, adds a separate building block in each period to account for the avoided interest or equity costs. The present value at implementation of the overall financial losses (i.e. the unrecovered returns which have taken into account the avoided financing costs in each period)the project financial losses less is calculated using the conventional regulatory WACC for each year or part-year of the pre-implementation period.¹⁵³
- 3.115 Post-implementation, the ongoing interest benefits will be deducted from Chorus’ allowable revenues under PQ regulation until the Crown funding is repaid. Further details are provided at 3.139 below.
- 3.116 We intend to use a similar approach to accounting for the benefits from Crown financing in the RAB used post-implementation to assess profitability under ID regulation for the other LFCs. This will help interested persons to assess whether s 162(d) is being promoted.

¹⁵³ Note that this method is an implementation of the emerging views paper method 2.

3.117 In reaching our draft decision we have also considered two alternative methods:

3.117.1 Adjusted WACC method. In this method, the weight applied to the type of capital provided by the Crown is reduced. Dr Lally has adjusted the WACC formula to deal with the circumstance where one portion of financing accrues no interest or equity cost, as is the case for Crown financing.¹⁵⁴ The adjusted WACC formula reduces the weight that is applied to the type of capital provided by the Crown.¹⁵⁵ The annual losses are calculated using the adjusted WACC and the present value calculation of the annual losses as at implementation also uses the adjusted WACC for each year or part-year of the pre-implementation period.

3.117.2 Stand-alone avoided financing cost method. This method calculates the annual losses using the conventional regulatory WACC and does not add any additional building blocks. The avoided costs of debt or equity are calculated separately, and these avoided costs are compounded using the avoided cost of debt or equity and deducted from the present value of the annual losses.

3.118 Below we provide further explanation of our draft decision to use the building block method, the alternative approaches we considered, and the reasons for our draft decision.

Draft decision: adopt the building block method

3.119 In summary, our draft decision approach involves calculating the financial loss asset by:

3.119.1 applying the conventional regulatory WACC to the non-loss RAB

3.119.2 calculating the annual losses using the standard BBM

3.119.3 adding an additional building block which is the avoided financing cost on the Crown concessionary funding

3.119.4 calculating the present value of those losses at implementation using the conventional WACC.

3.120 Depending on the underlying characteristic of the concessionary financing provided by the Crown financing, the additional building block in paragraph 3.119.2 is the cost of debt or the cost of equity.

¹⁵⁴ Dr Martin Lally, "Review of submissions on the cost of capital for fibre network losses" (11 September 2019).

¹⁵⁵ For example, if the Crown provides debt financing at zero cost and the benchmark leverage is 30%, the value assigned to the cost of debt is less than 30% of the cost of debt.

- 3.121 The cost of debt that is used to calculate the benefit of concessionary Crown financing in the case of Chorus will be based on the actual nature of the financing provided by the Crown, rather than the benchmark BBB+ credit rating that is used in the regulatory WACC calculation. In our view, this is required by the Act.
- 3.122 The benefit of the concessionary financing will also take into account the actual credit rating of the regulated provider (eg, as it is partially displacing debt that would otherwise reflect that credit rating).
- 3.123 As discussed earlier, our draft decision is to regard the concessionary financing the Crown provided to Chorus as debt. We understand that the Crown financing provided to LFCs is likely to predominantly resemble equity (refer to 3.109). We intend to further explore the nature of the Crown financing with regulated providers.
- 3.124 For further information on the calculation of the regulatory WACC, refer to Attachment F WACC for calculating the financial loss asset.

Adjusted WACC method

- 3.125 In summary, this method consists of calculating the financial loss asset by:
- 3.125.1 applying a formula for the WACC that is adjusted for concessionary Crown financing to the total RAB
 - 3.125.2 calculating the annual losses using the standard BBM
 - 3.125.3 calculating the present value of those losses at implementation using the adjusted WACC.
- 3.126 The adjusted WACC method has the following characteristics:
- 3.126.1 If Crown financing is debt: In the circumstance where the concessionary Crown financing is provided as debt in substance, the adjusted formula effectively reduces the value of the cost of debt and leaves the value of the cost of equity unchanged. The relative contribution of the cost of equity to the WACC is increased and the relative contribution of the cost of debt is decreased. Overall, the WACC is reduced. Another way of expressing the approach is that the adjusted WACC in each year is the conventional regulatory WACC, less the cost of debt weighted by the ratio of Crown financing to total value in that year.
 - 3.126.2 If Crown financing is equity: Where the concessionary Crown financing is provided as equity in substance, the adjusted WACC formula reduces the value assigned to equity and increases the relative contribution of the cost of debt to the WACC. In this case, the adjusted WACC in each year is the conventional WACC in each year, less the cost of equity weighted by the ratio of Crown funding to the total value in that year. Again, the WACC is reduced.

3.127 A possible limitation of this approach is that the character of the Crown financing has to be assumed to match the equity or debt cost assumptions in the adjusted WACC, rather than the actual avoided costs of equity or debt, as required by the Act. As a result, the value of the loss asset will be different to the value derived from the building block method.¹⁵⁶ In addition, in our view this approach is more complex and less transparent.

Stand-alone avoided financing cost method

3.128 In summary, this method consists of calculating the financial loss asset by:

- 3.128.1 applying the conventional regulatory WACC to the evolving non-loss RAB
- 3.128.2 calculating the annual losses (ie, the unrecovered returns) using a standard BBM
- 3.128.3 calculating the present value of those losses at implementation date using the conventional regulatory WACC for each year in the loss period as the discount rate
- 3.128.4 deducting from the unrecovered returns amount calculated at paragraph 3.128.3 the present value of the benefit of the Crown financing during the loss period; this amount is:
 - 3.128.4.1 the sum of the present values (at implementation) of the Crown financing in each year of the financial loss period using the relevant costs of debt or equity (as the case may be) for each relevant year; less
 - 3.128.4.2 the cumulative amount of Crown financing received in the financial loss period.

Note that the steps in 3.128.4.1 and 3.128.4.2 give the same result as compounding interest amounts derived from the pattern of Crown funding.

3.129 The difference between the stand-alone financing cost method and our draft decision is that the avoided payments on Crown financing before implementation are compounded forward at the financing rate avoided due to Crown financing, rather than at the regulatory WACC rate. As a result, the value of the financial loss asset will be different to the value derived by the building block method.¹⁵⁷

¹⁵⁶ If the actual costs of equity or debt are higher than the benchmark costs, the loss asset will be higher than for the building block method; if the actual costs of equity or debt are lower than the benchmark costs, the loss asset will be lower than the building block method.

¹⁵⁷ If the actual costs of equity or debt are higher than the benchmark costs, the loss asset will be lower than for the building block method if the regulated provider has been provided with equity funding by the Crown, and the loss asset will be higher than for the building block method if the regulated provider has

Rationale for draft decision

- 3.130 As discussed above, the three methods we have further considered in this section differ in the steps to calculate a financial loss asset that appropriately reflects the benefit of Crown financing during the pre-implementation period. To complement the technical explanations provided in this paper, following the publication of the draft decision we intend to publish a workbook that sets out the three methods.
- 3.131 The quantitative differences between the methods arise either as a result of:
- 3.131.1 the discount rates applied to compound the stream of annual benefit amounts of Crown financing forward to implementation. The draft decision and the adjusted WACC method use a WACC (conventional or adjusted) to do the compounding, whereas the stand-alone financing cost method uses a debt or equity rate.
 - 3.131.2 The use of the actual cost of financing. The draft decision and the stand-alone financing cost method use an actual financing cost, whereas the adjusted WACC method uses the benchmark cost of equity or debt.
- 3.132 This results in some difference in the value of the financial loss asset and, when reflected in end-user prices post-implementation, in different amounts of benefits from Crown funding passed on to end-users.
- 3.133 Below we explain the reasons for adopting the ‘building block method’ in our draft decision. For illustration, we explain our decision in terms of Chorus, which is expected to be subject to both PQ and ID regulation.¹⁵⁸
- 3.134 We have not adopted the adjusted WACC method in our draft decision due to the limitation of this approach being that the character of the Crown financing has to be assumed to match the benchmark equity or debt cost assumptions in the adjusted WACC. In our view, the Act requires us to use the actual avoided costs of equity or debt. We also consider it is complex compared to other approaches.
- 3.135 The building block method views the recovery of the benefit of Crown funding during the loss period as no more guaranteed than the loss asset, or any other asset in Chorus' balance sheet and its return is subject to the same correlation with market returns as other investments. This method therefore compounds the value of the benefit forward at a WACC rate. The building block method takes the view that the risk faced by end-users of Chorus in receiving the benefit of Crown financing in the loss period is reflected in the WACC.

been provided with debt funding by the Crown. The opposite results occur if the actual costs of equity or debt are lower than the benchmark costs.

¹⁵⁸ The other fibre providers are only subject to ID regulation. As discussed, our draft decision provides for a compounding rate that reflects the actual nature of the Crown financing, ie, debt and/or equity.

- 3.136 On the other hand, the stand-alone avoided financing cost method compounds interest payments in the loss period at a debt rate. Under this treatment, it is assumed that the unrecovered interest payments in the loss period face risk akin to debt.
- 3.137 In our view, the building block method better reflects the actual risk being borne by consumers in recovering that part of the benefit of Crown financing that accrues in the loss period. Equivalently, our view is that the draft decision also best reflects the risk that Chorus avoids in this process and thus balances s 162 (a) and (d) concerns in respect of Crown financing.
- 3.138 On balance, we think that the building block method better reflects the actual risk borne by consumers in recovering that part of the benefit of Crown financing that accrues in the loss period. Equivalently, we consider that our draft decision best reflects the risk that Chorus and LFCs avoid during the loss period. This helps ensure that regulated providers are limited in their ability to earn excessive returns (section 162(d)), while earning a normal return on capital, which provides appropriate incentives to invest consistent with (section 162(a)).

Illustration of treatment of financial loss asset post-implementation

- 3.139 In **Box 3.1** below we illustrate how we expect to determine the maximum allowable revenue under PQ and ID regulation.

Box 3.1 Maximum allowable revenue for the post-implementation period

Post-implementation, when determining PQ paths and when assessing performance under ID regulation we intend to distinguish between three components in total asset value (or the 'total RAB'): the non-financial loss asset RAB, the unrecovered returns, and the benefit of concessionary Crown financing. The total RAB at implementation comprises the following:

total RAB = non-financial loss asset RAB + financial loss asset

Where the financial loss asset is the unrecovered returns less the benefit of concessionary Crown financing as described in paragraph 3.119.

After implementation, the non-financial loss asset RAB and the financial loss asset will be rolled forward based on relevant depreciation and repayment schedules.

To ensure transparency of the benefit of Crown financing in place post-implementation, our current view is that in the building blocks calculation we will:

- calculate the return on assets by applying the conventional regulatory WACC to the total RAB; and
- include a building block that reflects the ongoing benefit of Crown financing. The value of this benefit will be calculated by multiplying the relevant avoided cost of financing for the relevant year by the nominal outstanding total of concessionary Crown financing. The deductions will continue until the Crown financing is repaid.

Alternative treatment of financial loss asset post-implementation

- 3.140 Greater flexibility in the treatment of the initial financial loss asset in the period post-implementation could be achieved if the initial financial loss asset components were treated as two distinct assets at (and after) implementation date for the purposes of PQ and ID regulation.
- 3.140.1 The component representing the accumulated unrecovered returns would be an asset with a positive value.
- 3.140.2 The component representing the benefit of concessionary Crown financing would be an asset with a negative value.
- 3.141 The current value of the financial loss asset referred to in s 177(2) of the Act could then be determined at any point by offsetting the values of these two assets against each other. The two assets can be considered 'sub-assets', together comprising the initial financial loss asset for each regulated provider.
- 3.142 This treatment could allow:
- 3.142.1 Depreciation treatments to apply differently to each of the assets. For example, the negative asset representing the benefit of Crown financing could be depreciated at a faster rate, and the depreciation (a negative amount) would enter the calculation of the PQ path to effectively share the benefit with end-users through prices more rapidly.
- 3.142.2 The return on capital could be calculated differently for each asset. For example, the return on capital applied to the benefit of Crown financing asset (a negative return) could be calculated at a debt rate rather than the regulatory WACC.
- 3.142.3 Some assets to be exempt from the value reduction required following deregulation (see below). For example, only the accumulated unrecovered returns asset could be reduced in value if deregulation occurred. The benefit of Crown financing asset could stay intact in order to pass the full benefit through to end-users through future prices.

The role of the financial loss asset for providers subject only to ID regulation

- 3.143 In this section we provide context on the role the financial loss asset will have for regulated providers subject only to ID regulation.

3.144 The Act includes specific rules in relation to the financial loss asset for regulated providers LFCs. It sets out that:¹⁵⁹

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.

3.145 Section 177(3) sets out the following:

(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).

3.146 However, s 191 of the Act differentiates between entities subject to both PQ and ID regulation, and those only subject to ID regulation with regard to the cost of capital:

(1) Despite section 175, a regulated fibre service provider who is subject only to information disclosure regulation does not have to apply input methodologies for evaluating or determining the cost of capital.

(2) However, to avoid doubt, subsection (1) does not affect anything else in this subpart, and in particular does not affect—

(a) section 187(2) (which means the Commission may use the input methodologies referred to in subsection (1) to monitor and analyse information); or

(b) section 188(2) (which means that a regulated fibre service provider may still be required to disclose information about the methodologies for evaluation or determining the cost of capital that it does in fact use).

3.147 The asset valuation IM determines a methodology for calculating “accumulated unrecovered returns” by providing for an approach to calculating the financial loss asset.

3.148 Providers subject only to ID regulation will be free to set prices and earn revenues as they see fit. However, we (and other interested persons) will be assessing whether the purpose of Part 6 is being met by applying the IMs when assessing performance, such as profitability. Ensuring profitability assessments are valid will require applying the cost of capital IMs and calculating the financial loss asset in the accordance with the asset valuation IM.

¹⁵⁹ See s 177(2) and (3) of the Act.

- 3.149 The providers subject only to ID regulation will need to understand which specific cost of capital will be applied under information disclosure and the value of the financial loss asset calculated in accordance with the asset valuation IM. Regulated providers may either perform the calculation of the financial loss asset themselves in accordance with the relevant IMs. Alternatively, we will calculate the loss asset in accordance with the IM.¹⁶⁰
- 3.150 In order for us to calculate the regulatory WACC, we may need to undertake information gathering in accordance with s 98 of the Commerce Act or s 221 of the Act. For further information on the calculation of the regulatory WACC refer to Attachment F WACC for calculating the financial loss asset.

Cost allocation for the financial loss asset calculation

- 3.151 The cost allocation IM sets out rules for allocating costs to regulated FFLAS for the calculation of the financial loss asset.
- 3.152 These cost allocation rules will cover both asset values and operating expenses. See below regarding the cost allocation draft decisions applicable to the past loss period.

Treatment of the tax building block in the financial loss asset calculation

- 3.153 We expect that each regulated providers' costs will exceed UFB revenue for each year or part-year of the loss period. On this basis, and applying the tax IM, a tax allowance of nil would be calculated for each year— ie a nil tax building block will be likely included in the building blocks revenue calculation.
- 3.154 However, the tax IM draft decision provides for regulated providers to carry forward tax losses for each of these years or part years which will be available post-implementation.
- 3.155 Our emerging view was that past tax losses should not be carried forward or included in the calculation of the value of the financial loss asset as we expected that by implementation date, tax losses from the fibre rollout will have been used by Chorus and the other LFCs to offset profits in other parts of the business or group.
- 3.156 After considering submissions, we have decided to allow for tax losses to be carried forward and that these will be available post-implementation. For further discussion of this decision refer to the tax section below.

¹⁶⁰ The appropriate financial loss asset will be publicly disclosed and will assist interested persons in assessing whether the Part 6 purpose is being promoted.

Assets that pre-date the UFB initiative form part of the calculation of the financial loss asset

- 3.157 The operation of the UFB initiative relies on assets built from 2011 onwards, as well as pre-2011 assets. This is expressly recognised in the calculation of the initial value of the fibre asset under s 177(1) and (6), which includes shared assets, some of which pre-date the UFB initiative.¹⁶¹
- 3.158 We are tasked with determining the financial losses incurred by each regulated provider in providing FFLAS under the UFB initiative.¹⁶² In doing so, we must take into account any accumulated unrecovered returns on investments made by the provider under the UFB initiative, calculated in the manner we see fit.¹⁶³
- 3.159 Given the UFB initiative involved the use of pre-2011 assets, the “accumulated unrecovered returns on investments made by the provider under the UFB initiative” must necessarily include those returns on those pre-2011 investments on assets deployed for the UFB initiative.

Access seekers’ submissions that returns on pre-2011 are excluded

- 3.160 Some access seekers submit that the requirement under s 177(3) for the Commission to take into account accumulated unrecovered returns on investments made under the UFB initiative excludes pre-2011 assets.¹⁶⁴ In particular, they submit that pre-2011 investments could not have been “made by the provider under the UFB initiative”. Their concern is that inclusion of common or shared costs will result in excessive profits for Chorus, contrary to s 162(d).¹⁶⁵

Purpose of s 177 means accumulated unrecovered returns on investments necessarily includes those returns on pre-2011 assets deployed for UFB initiative

- 3.161 We are required to calculate the accumulated unrecovered returns on investments as we see fit, as set out in s 177(3) and (6). The focus here is on the accumulated unrecovered returns on investments that fibre providers incurred during the UFB initiative, regardless of whether all assets deployed to meet the requirements of the UFB initiative were actually purchased during the 2011-implementation date period.

¹⁶¹ In section 177(6), a “fibre asset” is defined as “an asset that is (a) constructed or acquired by a regulated fibre service provider; and (b) employed in the provision of FFLAS (whether or not the asset is also employed in the provision of other services).

¹⁶² Section 177(2)

¹⁶³ Sections 177(3) and 177(6)

¹⁶⁴ Trustpower, “Submission: Fibre Regulation Emerging Views” (16 July 2019), at 3.5.5-3.5.9; Vector, “Submission to Commerce Commission on the Fibre Regulation Emerging Views Paper” (16 July 2019), at 25-31; Vodafone, “New regulatory framework for fibre: Submission on Fibre Regulation Emerging Views” (16 July 2019), page 4, 15. This view has support from 2degrees and Vodafone, and Vocus.

¹⁶⁵ 2degrees “Fibre emerging views submission” (16 July 2019).

- 3.162 Meeting the requirements of the UFB initiative involves reliance on pre-2011 assets that contribute to UFB. As Chorus has noted, the acquisition of pre-2011 assets by Chorus was a step undertaken as a condition of, and pursuant to the UFB initiative.¹⁶⁶
- 3.163 As such, we consider that “investments made under the UFB initiative” necessarily includes the cost associated with the use of an asset in order to meet the requirements of the UFB initiative. Those costs that contribute to UFB revenues should therefore be reflected in the losses.
- 3.164 While s 173(3) makes it mandatory for the Commission to consider accumulated unrecovered returns on investments from 1 December 2011 to implementation date, there is nothing to preclude the Commission taking account of accumulated unrecovered returns on pre-2011 investments (provided these unrecovered returns on those investments relate to the period 1 December 2011 to implementation date). It is open to the Commission, and in our view, necessary, to take into account accumulated unrecovered returns on pre-2011 investments, in order to give effect to the purpose of the financial loss asset.
- 3.165 In calculating the financial losses, we also consider we should take a consistent approach to that prescribed for the (non-financial losses) fibre asset under s 177(1) and (6). It would be incongruous and would frustrate the purpose of recognising financial losses if pre-2011 assets were included in the RAB, but the financial losses associated with these assets could not be recovered.
- 3.166 In addition, reusing existing infrastructure may be cost efficient and, when applying the asset valuation IM under PQ regulation, lead to regulated providers sharing the benefit of this efficiency with FFLAS end-users, which is consistent with the outcome in s 162 (c). It is inefficient and unworkable to operate the network using solely incremental investments created post-2011.

Timing of cashflows

- 3.167 Standard discounting approaches often assume that the entire value of cashflow for a given year comes in at the end of that year, and therefore should be discounted accordingly. Cashflows can occur in certain patterns across the year. This means that a discounting approach that assumes end of year may discount the future value too much.
- 3.168 More accurate modelling of the cashflows when setting price paths reduces the likelihood that a regulated provider will under — or over — recover returns for the regulatory period after taking account of the time value of money.

¹⁶⁶ Chorus "Fibre emerging views cross-submission " (31 July 2019) at 34-39.

3.169 More accurate modelling of cashflow timing also better promotes the long-term benefit of end-users under s 162 of the Act:

3.169.1 When applied under PQ regulation, this will result in price paths that more accurately reflect expenditure and in particular, limit any excessive profits that may arise when assuming end-of-year timing of cash flows (consistent with s 162(d)). Note that this needs to be balanced against regulated providers having incentives to invest, consistent with 162 (a).

3.169.2 When applied under ID, this will result in more accurate performance assessment, and assist interested persons in understanding whether s 162(d) is being promoted.

Scope of opex and revenue included in the financial loss asset

UFB revenue

3.170 UFB revenue is a key input for determining the value of the loss asset. UFB revenue must be calculated net of capital contributions. Capital contributions received as income must be separately identified.¹⁶⁷

3.171 Our review of regulated providers' information revealed that further work may need to be done on business rules to accurately identify 'UFB revenue'.

3.172 In the absence of existing business rules, a degree of judgement will be required in order to calculate UFB revenue earned from 2011 to 2021. A higher revenue amount has the effect of reducing the value of the financial loss asset, while lower revenue amount increases the value of the financial loss asset. The judgements need to balance:

3.172.1 legislative requirements relating to calculation of the financial loss asset (s 177); and

3.172.2 the need to limit service providers in their ability to extract excessive profits, consistently with s 162(d) of the Act.

3.173 We consider that regulated providers are best placed to develop business rules for calculating the UFB revenue consistent with the definition of 'UFB revenue'. However, we and other interested parties will need to understand the business rules. We envisage that regulated providers will be required to explain the approach to defining UFB revenue in their IDs and in their PQ path proposals.

¹⁶⁷ Capital contributions are a defined term in the asset valuation IM. Note also that there may be gains or losses when disposing of assets. These gains or losses need to be factored in when calculating revenue.

UFB opex

- 3.174 UFB opex is another key input to the financial loss asset calculation. The default cost allocation methodology, ABAA, set in the cost allocation, provides regulated providers with discretion regarding the choice of cost allocators. In the absence of regulatory rules, regulated providers have incentives to increase the allocation of shared costs to regulated FFLAS, and recover the revenue relating to these costs following implementation.
- 3.175 For this reason, the cost allocation IM prescribes a list of cost allocators that regulated providers may apply in allocating shared opex to regulated FFLAS. The prescription is intended to prevent a materially larger share of opex from being allocated to regulated FFLAS than is consistent with s 162(d).
- 3.176 For regulated providers subject to PQ regulation, we envisage that we will review the application of the cost allocation IM to assess UFB opex, and determine the UFB opex in a PQ regulation determination.

Practical process for calculating the financial loss asset

- 3.177 We note that the practical process for calculating the value of the loss asset will be progressed as part of PQ regulation for Chorus or ID regulation for LFCs. The overall process for calculating the initial RAB will also be progressed outside the IMs process.
- 3.178 In setting the initial price path, the PQ regulation process will set out the details of:
- 3.178.1 the information to be collected;
 - 3.178.2 the method of collection; and
 - 3.178.3 the practical details of the calculation.

Roll forward of the RAB

- 3.179 In the following section we discuss our draft decisions with respect to the roll forward of the RAB, including:
- 3.179.1 roll forward mechanism;
 - 3.179.2 core valuation rules for fibre assets added after implementation date;
 - 3.179.3 calculation of depreciation;
 - 3.179.4 depreciation of Crown funded assets;
 - 3.179.5 treatment of inflation; and
 - 3.179.6 adjustments to the RAB following deregulation.

Roll forward mechanism

Draft decision

3.180 Our draft decision is that RAB roll forward is calculated as:

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

Rationale

3.181 A general expression for the annual building blocks allowable revenue for a regulated provider can be represented as follows:

$$\text{RAB} \times \text{cost of capital} + \text{Depreciation} + \text{Operating Expenditure} + \text{Tax} - \text{Revaluations} - \text{Other income} = \text{Building Blocks Allowable Revenue}$$

3.182 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—as follows:

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

3.183 For each year within the regulatory period, the RAB will have an opening (beginning of year) and closing (end of year) value as per paragraph 3.182. 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.

3.184 We think a one-year period for roll forward is appropriate for all regulated providers. This would align with a requirement to provide annual ID. 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.¹⁶⁸ Note that this approach is generally consistent with Part 4.

3.185 The approach to capital additions will follow the core valuation rules set out above.¹⁶⁹ Disposals occur in respect of the sale or transfer of an asset by the regulated provider and consist of removing the remaining value (sometimes termed the ‘carrying value’) of the asset in the year in which it is disposed of.¹⁷⁰

¹⁶⁸ 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.

¹⁶⁹ As discussed above, assets are eligible to be included in the 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.

¹⁷⁰ 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.

- 3.186 At this stage we do not see any reason for having other adjustments (such as lost or found assets) 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 built recently and records are being maintained (for example, for statutory and current regulatory purposes).
- 3.187 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 draft Chorus capex IM provides for rules and processes relating to the approval of the capex additions (and therefore the expected RAB roll forward) that is considered in determining the maximum allowable revenue for a regulatory period.

Core valuation rules for fibre assets added after implementation

Draft decision

- 3.188 Our draft decision is that post-implementation, the initial value of a 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).¹⁷¹
- 3.189 The costs directly attributable and the costs not directly attributable to regulated FFLAS are determined by applying the cost allocation IM.
- 3.190 This approach will apply to any fibre assets added post-implementation, including repurposed assets.

Rationale

- 3.191 Our draft decision is that following implementation the “cost” of an asset has to be calculated net of any capital contributions and accounting depreciation.¹⁷² This is generally consistent with the approach under Part 4 where the “cost” of an asset is obtained using GAAP principles.
- 3.192 For the avoidance of doubt, consistent with our draft decisions for the cost of the pre-implementation assets, we do not propose making any revisions to the asset’s base cost 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 cost allocation IM.

¹⁷¹ 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.

¹⁷² 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.

Assets repurposed for fibre use

- 3.193 We expect there to be some assets that are currently used (wholly) for purposes other than providing regulated FFLAS, but which may be ‘repurposed’ wholly or partly, after the implementation date for use in the provision of regulated FFLAS.
- 3.194 The issue of the value at which these assets should enter the RAB at implementation date arises because these assets were used for the initial part of their life in the provision of an unregulated service.¹⁷³ 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. This approach is consistent with the FCM principle and gives effect to the Part 6 purpose in s 162(d) by ensuring that regulated providers cannot over-recover the full costs of any ‘repurposed’ assets through multiple revenue streams (i.e. the likelihood of double recovery of costs is reduced).
- 3.195 Our draft decision is that the repurposed assets are subject to the same core valuation rules that apply to any other assets added post-implementation date. This approach has the advantage of being simple for regulated providers to understand and calculate using their existing accounting systems.
- 3.196 We propose to ignore any pre-implementation revaluations applied by regulated providers.
- 3.197 We considered an alternative of calculating the cost of repurposed assets under GAAP and subtract accumulated regulatory depreciation at the time of their entry into the RAB. However, this would require regulated providers to track a regulatory value (including regulatory depreciation) for all assets that might be potentially applied to the delivery of regulated FFLAS at a later date. It would also require us to account for the issue of regulatory revaluations. We consider the draft decision better gives effect to the overall Part 6.
- 3.198 We also note that 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 amount of depreciation and return on capital for regulated FFLAS. As discussed in paragraph 3.72, 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 not provided.

¹⁷³ Or a service subject to different regulatory control.

Calculation of depreciation

Draft decision

3.199 In this section we set out our draft decisions in relation to depreciation.

Regulated providers subject only to ID regulation

3.200 Our draft decision is that for a regulated provider subject only to ID regulation:

- 3.200.1 the depreciation method applied under ID must be consistent with the time profile of revenue recovery it applies at the time of disclosure; and
- 3.200.2 at implementation, the default is a depreciation method consistent with GAAP, but a regulated provider may apply an alternative method where this is required to achieve consistency with the time profile of revenue recovery.
- 3.200.3 Where a regulated provider chooses an alternative depreciation method, we intend to require the regulated provider, in line with ID requirements, to disclose and explain the key assumptions, including how these differ from the default method.

Regulated providers subject to both PQ and ID regulation

3.201 For a regulated provider subject to PQ regulation, our draft decisions are:

- 3.201.1 To determine a depreciation method consistent with GAAP as default, or an alternative method for some or all assets.
- 3.201.2 Where an alternative depreciation method is applied, the Commission must be satisfied that the result of applying the alternative method would:
 - 3.201.2.1 better promotes the purpose of Part 6 of the Act;
 - 3.201.2.2 best gives, or is likely to best give effect to s 166(2)(b) of the Act; or
 - 3.201.2.3 is consistent with the smoothing provision (s 197).
- 3.201.3 With respect to future regulatory periods, the regulated provider may only adopt a different depreciation method between regulatory periods if the Commission is satisfied that the new method:
 - 3.201.3.1 better promotes the purpose of Part 6 of the Act;
 - 3.201.3.2 best gives, or is likely to best give effect to s 166(2)(b) of the Act or
 - 3.201.3.3 is consistent with the smoothing provision (s 197).

3.202 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.

Rationale for decision

- 3.203 When the useful life of an asset extends over more than one year, an annual depreciation allowance is applied. This recognises and allocates the recovery of the initial investment over the years of the expected life of the asset.
- 3.204 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 to profitability assessments.
- 3.205 Depreciation seeks to reflect the decline in value of an asset over time in a way that is broadly aligned with the consumption of the asset, all other things being equal, and determines how the cost is allocated to customers over time to determine prices.¹⁷⁴
- 3.206 In the emerging views paper, we proposed using straight-line depreciation for both the main RAB and for amortising the financial loss asset, as it is simple, transparent, more easily understood and easier to compare.
- 3.207 We considered submissions and relevant experience from Part 4 regulation and have changed our view. We now propose a different approach for our draft decision for the asset valuation IM. On balance, we consider that allowing regulated providers scope for flexibility in their depreciation approach is better aligned with outcomes in workably competitive markets (for example, by recognising that end-users that benefit from the asset in a given period typically bear the appropriate amount of cost) and thus, this approach best gives effect to the s 162(a) and (d) objectives.
- 3.208 Our draft decisions apply to both the main RAB and the financial loss asset. We consider these are two separate assets and regulated providers will therefore need to ensure the depreciation information is separately identifiable. We would anticipate that a regulated provider will depreciate the loss asset in a manner that is generally consistent with the approach for other assets, but the IM provides for flexibility to use a different approach if the circumstances warrant it.

¹⁷⁴ 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.

3.209 Below we explain the approaches to depreciation, and the reasons for these approaches for regulated providers subject only to ID regulation, and those providers also subject to PQ regulation. The key difference between in our treatment is that:

3.209.1 A regulated provider subject only to ID regulation must ensure that the method they apply is consistent with the time profile of revenue recovery. This ensures that the depreciation information disclosed under ID is a useful input to profitability assessment, while ensuring that providers can set prices as they see fit.

3.209.2 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 the purpose of Part 6 in s 162 and smoothing provisions (s 197).

Regulated providers subject only to ID regulation

3.210 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.¹⁷⁵

3.211 Airports are only subject 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. Because airports generally used different depreciation methods for setting prices, performance assessments based on ID and pricing information (based on commercial business rules) provided only limited insights.¹⁷⁶

3.212 We consider that the same lesson applies to regulated providers subject only to ID regulation. Similar to airports, they are not required to apply any regulatory accounting rules when setting prices.¹⁷⁷

3.213 Our draft decision requires regulated providers to disclose depreciation 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. This will help stakeholders assess whether the prices set by regulated providers are consistent with the Part 6 purpose, in particular, 162(d) (ensuring regulated providers are limited in their ability to extract excessive profits).

¹⁷⁵ Note that the depreciation method for the initial asset values is set in s 177 (1).

¹⁷⁶ 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).

¹⁷⁷ 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.

3.214 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 main RAB and financial loss asset). We consider that GAAP provides a useful framework for regulated providers to develop their depreciation choices and have made it the default approach accordingly. When explaining any alternative approach, we intend that regulated providers will need to demonstrate the impact of the alternative method compared to the default GAAP approach.

Regulated providers subject to both PQ and ID regulation

- 3.215 A regulated provider subject to PQ and ID regulation is subject to a cap on maximum revenues recoverable over a regulatory period. In reaching our draft decision, a key consideration was whether on balance, a flexible or a prescriptive approach better promotes the Part 6 purpose.
- 3.216 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 consumption of the asset. A service with significant scope for sustained end-user growth, such as Chorus' service at the start of implementation, may be expected to push into the future the profile of cost recovery.
- 3.217 Recovering a given cost from a smaller end-user base (ie, the near 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 has to balance the impact of higher end-user prices on service uptake against other factors, such as stranding risk in the longer term (eg, due to emerging competition).¹⁷⁸
- 3.218 Regulated providers have access to the best information on how to balance the risks to cost recovery from lower uptake in the near term versus asset stranding in the longer term in the event that competition emerges in future. In line with the economic principle for risk allocation, we consider that regulated providers subject to PQ regulation are best placed to manage these risks and 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).
- 3.219 However, the Commission must be satisfied that any depreciation profile that a regulated provider applies best promotes the purpose of the Act and is consistent with the smoothing provision in order to minimise any undue financial hardship or price shocks to end-users (s 197).

¹⁷⁸ Uptake depends on end-users' price-sensitivity and factors such as the availability of substitutes (eg, copper or mobile services).

- 3.220 To help with our determination of the profile, we consider that GAAP provides a useful framework for regulated providers to inform their depreciation method under the asset valuation IM. As such, we have made it the 'default' approach. When proposing an alternative approach, we consider it useful to understand of the impact of the alternative compared to the default approach. While we consider a flexible approach is overall preferable to a prescriptive approach in the IM rules, in determining the depreciation approach we will consider a regulated provider's proposal in light of s 162 and s 197).
- 3.221 We consider that retaining approval over the depreciation method under PQ regulation is sufficient to shape the time profile recovery to balance outcomes required under s 197 against the requirement to make a decision that best gives effect to the purpose in s 162 (a) and (d).

Interaction of asset valuation IM with our treatment of asymmetric risk

- 3.222 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).

Consistency of depreciation method with small ex-ante allowance to deal with stranding risk

- 3.223 There is a risk that regulated providers might be exposed to asset stranding, given the dynamic nature of telecommunication markets. Our draft decision to allow a regulated provider flexibility regarding the depreciation method (refer to previous section) and asset lives may help mitigate this risk.
- 3.224 An additional measure is our draft decision to allow for a small ex-ante allowance to compensate for stranding risk, as discussed in the Asymmetric risk section of the WACC chapter below]. This raises the possibility of inconsistency between the ex-ante allowance and any amendments to the depreciation method and asset lives over time.
- 3.225 A consideration that will be relevant to our determination of the depreciation method for regulated providers subject to both ID and PQ regulation will be whether the overall risk mitigation package (including the small ex-ante allowance and any adjustments to depreciation) appropriately promotes the Part 6 purpose.

Treatment of assets destroyed by catastrophic events

- 3.226 Type 1 catastrophic events, such as natural disasters, may lead to the need to remove assets 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 considered to be a disposed asset and will be removed from the RAB. To the extent that damaged assets are left in situ, or taken out and placed in storage (but remain in the possession of the supplier), those assets are not considered “disposed” and will remain in the RAB. We propose 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.
- 3.227 The rules and processes IM will consider the ability to 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 for the second regulatory period and possibly future regulatory periods beyond that. The wash-up mechanism will also be considered as part of the rules and processes IM. As noted in discussion on Asymmetric risk, this wash-up mechanism significantly mitigates demand risk as a result of a catastrophic event.

Treatment of inflation

Draft decision

- 3.228 As discussed in **Chapter 2**, FCM is one of the key economic principles adopted to assist us in implementing the Part 6 regulatory regime. A key consideration in providing ex-ante expectation for real FCM is how investors are compensated for inflation.
- 3.229 Our draft decision is to require indexation of the RAB (both the main RAB and the financial loss asset) for CPI inflation as part of the roll forward process. This will involve:
- 3.229.1 determining a nominal regulatory WACC (which inherently incorporates inflation expectations at the time it is calculated);
 - 3.229.2 indexing the RAB (ie, revaluing it) to account for forecast CPI inflation (based on Reserve Bank inflation forecasts and the mid-point of its inflation target) for each year of the PQ path regulatory period;
 - 3.229.3 deducting increases in asset value due to revaluations as income. The recognition of the revaluation gain as income avoids providing double compensation to regulated providers for inflation (ie, once via the nominal regulatory WACC and then again through the increase in asset value);

3.229.4 roll forward of the RAB under ID from year-to-year using actual, rather than forecast, inflation. Therefore, at the time of the next price reset, opening RAB values will have been maintained in real terms.

3.230 This is the approach generally used in New Zealand economic regulation, for example under Part 4 (except for Transpower).

Alternative options for compensating regulated providers for inflation risk

3.231 In reaching our decision, we have also considered alternative approaches, the unindexed RAB approach and a real WACC approach.

Unindexed RAB approach

3.232 The approach used for Transpower regulation under Part 4 is to provide investors ex-ante an opportunity to earn a normal return by:¹⁷⁹

3.232.1 determining a nominal WACC (which inherently incorporates inflation expectations at the time it is calculated); and

3.232.2 not indexing the RAB.

3.233 The unindexed RAB approach ensures that ex-post returns are maintained in nominal terms, but not in real terms (unless actual inflation equals forecast inflation, as incorporated through the inflation expectations inherent in the nominal WACC).

Real WACC approach

3.234 Another approach, often used in overseas jurisdictions such as the UK, is to provide investors an opportunity to earn a normal return by:

3.234.1 determining a real WACC; and

3.234.2 indexing the RAB for actual inflation.

3.235 Our draft 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).

¹⁷⁹ 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.

Summary of rationale for our draft decision

3.236 The reasons for our draft decision regarding treatment of inflation, expanded upon below, are summarised as follows:

3.236.1 **Ex-ante real FCM.** Our chosen approach, and the two alternatives set out 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 compensation for inflation risk, and therefore ensuring that our approach to asset valuation is consistent with ex-ante FCM means that regulated provider's incentives to invest are preserved. This approach therefore gives effect to the Part 6 purpose at s 162(a).

3.236.2 **Risk allocation.** Taking steps to eliminate the inflation risk that equity holders do not achieve a real return ex-post from a regulated provider's perspective would mean exposing end-users to it, and we consider that regulated providers are better placed to manage it than end-users. The approach we propose to adopt for indexing the RAB is consistent with the economic principle of allocating risks to those best placed to manage them.

3.236.3 **Nominal WACC.** An approach relying on nominal WACC is the approach generally adopted in New Zealand economic regulation among other reasons, due to the absence of data to reliably estimate a 'real WACC'.

3.236.4 **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.

3.237 By ensuring compliance with FCM and appropriately balancing inflation risk allocation, our draft decision best serves the purpose in s 162.

Nominal WACC is the approach generally adopted in New Zealand

3.238 In New Zealand, economic regulation generally relies on approaches that use a nominal WACC.

3.239 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.

3.240 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. For example, a May 2019 Treasury paper states that:¹⁸⁰

- 3.240.1 Real WACC estimation requires robust information on index linked bonds.
- 3.240.2 The inflation-indexed bond market is generally less liquid than nominal bonds.
- 3.240.3 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.
- 3.240.4 The Treasury is not aware of any reliable and relevant information which can be used to assess the inflation risk premium.

3.241 A real WACC approach has the benefit of simplicity, making it easy to understand. We are not however aware of any reason why moving to an approach involving a real WACC with an indexed RAB would be materially better at providing an ex-ante expectation of a normal return than our draft decision approach (which is the same approach we also generally apply under Part 4). As such, in making our draft decision for the Asset Valuation IM, we have not explored further an approach to compensating investors for inflation risk that requires the estimation of a real WACC.

Nominal WACC approach best allocates risk to those best placed to manage it and in doing so gives effect to s 162(a)

3.242 While the nominal WACC approach we are adopting in our draft decision is well understood, we are aware there is a risk with this approach that equity holders do not achieve a real return ex-post.¹⁸¹ 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 concluded that this risk is small and symmetric, and regulated providers have some control over it (eg, issuing inflation-indexed debt).

¹⁸⁰ The Treasury “Risk-Free Discount Rates and CPI Inflation” (21 May 2019), page 24.

¹⁸¹ We previously considered this in our review of input methodologies under Part 4, that 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

- 3.243 Furthermore, taking steps to eliminate this risk that equity holders do not achieve a real return ex-post from a regulated provider's perspective would mean exposing end-users to it, and we consider that regulated providers are better placed to manage it than end-users. Thus, the approach we propose to adopt for indexing the RAB is consistent with the economic principle of allocating risks to those best placed to manage them.
- 3.244 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 162(a).

We have not adopted an unindexed RAB approach

- 3.245 Our draft decision involves indexing the RAB. While some submitters supported RAB indexation (including Chorus), others suggested we use an unindexed approach. Submitters generally viewed an unindexed RAB as a means of achieving a front-loaded capital recovery to mitigate the risk of stranding.
- 3.246 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."¹⁸²
- 3.247 For example, it may be appropriate to:
- 3.247.1 front-load capital recovery to mitigate potential stranding risk; or
 - 3.247.2 back-load capital recovery to manage price shocks in the context of assets built ahead of demand
- 3.248 Our draft decision to index the RAB focuses on ensuring compliance with ex-ante FCM and appropriate allocating inflation risk and leaves the issue of stranding to other regulatory mechanisms. In our view, under Part 6 there are more effective mechanisms for shaping the time profile of capital recovery than choosing an unindexed RAB approach. As illustrated by submissions, in some instances an unindexed RAB might achieve a better time profile of revenue recovery, while in other situations an indexed RAB might achieve a better time profile of revenue recovery. There are more flexible and practical mechanisms to shape the time profile of revenue, including depreciation and smoothing (refer to relevant sections).

¹⁸² Chorus, Submission on the Commerce Commission's emerging views (16 July 2019), Appendix A, paragraph 36. https://comcom.govt.nz/data/assets/pdf_file/0025/161917/Chorus-Fibre-emerging-views-submission-16-July-2019.pdf

Rationale for choosing CPI as inflation index

- 3.249 Our draft 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.
- 3.250 We have considered alternative inflation indices.¹⁸³ The key reasons for using a CPI approach to revaluations, instead of other methods such as market value or producer price indexing, are as follows:
- 3.250.1 It avoids the time, cost and uncertainty of undertaking regular revaluations of a variety of assets, which would be required if an alternative market value approach was used. Given the variety of methods that may underlie these revaluations, they are open to dispute.
 - 3.250.2 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 will affect the impact on that regulated provider and can lead to counter-intuitive cash flow profiles, with lower revenues when the alternative index is increasing at a rate higher than CPI.¹⁸⁴

Further considerations in managing inflation risk

- 3.251 While, as discussed above, all three approaches (set out above) 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:
- 3.251.1 A consistency issue between forecast CPI and inflation expectations inherent in WACC.
 - 3.251.2 A potential 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

- 3.252 To the extent that (ex-ante) inflation forecasts are consistent, the ex-post risk that actual CPI is different from forecast CPI is significantly mitigated.¹⁸⁵

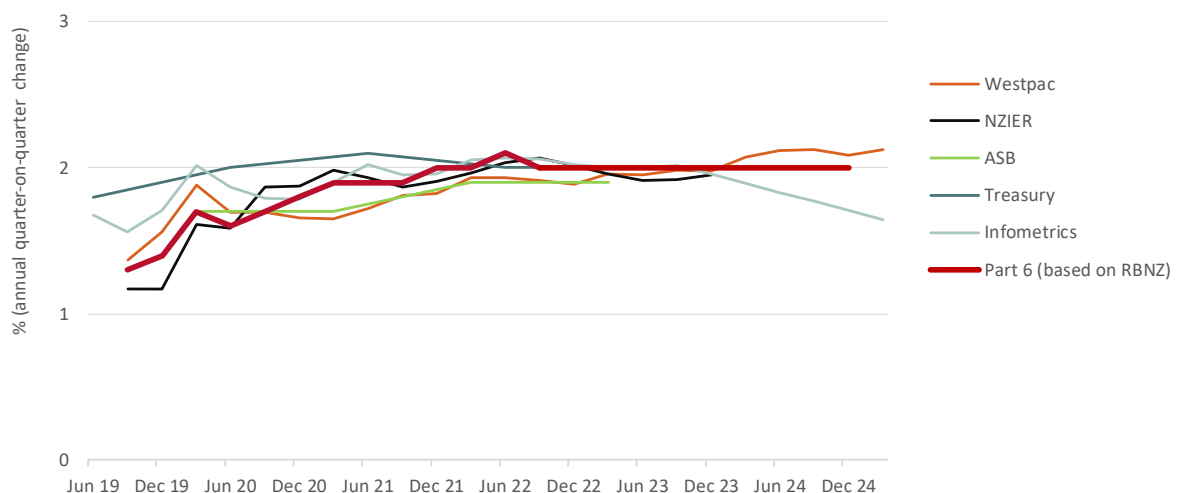
¹⁸³ We have not received any submissions suggesting we use an index other than CPI for revaluation.

¹⁸⁴ See Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper December 2010, paragraph 4.3.80.

¹⁸⁵ 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.

- 3.253 Our draft decision is to use a CPI forecast that is based on Reserve Bank forecasts and the mid-point of its inflation target.¹⁸⁶ The regulatory nominal WACC is intended to reflect market inflation expectations.
- 3.254 if inflation expectations inherent in WACC and forecast CPI are consistent, then regulated providers are provided with a normal return. However, if they are mismatched, the impact is one of the following:
- 3.254.1 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); or
 - 3.254.2 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 revenue are lower than the implicit return for inflation in the nominal WACC).
- 3.255 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.¹⁸⁷
- 3.256 Instead, we have compared our approach to forecasting CPI in this draft decision to other CPI forecasts. **Figure 3.1** below shows that our approach is in line with other CPI forecasts. This means that it is reasonable to assume that our estimate of inflation is consistent with the inflation expectations inherent in the WACC.

Figure 3.1: Comparing Part 6 CPI forecast with other inflation forecasts



¹⁸⁶ This approach is also adopted under Part 4.

¹⁸⁷ Forecast CPI under our draft decision is based on the Reserve Bank NZ forecast and the mid-point of its inflation range of 1 to 3%. This approach is consistent with the Part 4 approach.

3.257 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 draft decision approach.

Alternative approach: using forecast CPI for indexing the RAB

3.258 Another approach, raised by Vector and the Electricity Networks Association (ENA) during the Part 4 IM review, is to index the RAB using the expected (or forecast) inflation rate.

3.259 Our approach in the asset valuation IM draft decision is to apply forecast CPI when indexing price paths (refer to paragraph 3.228). The ID RAB — which is reflected in periodic price resets — is indexed using actual CPI. This choice protects both end-users and regulated providers from inflation risk.

3.260 Dr Martin Lally reviewed this option of using forecast CPI rather than actual CPI to index the RAB.¹⁸⁸

¹⁸⁸ 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

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.

3.261 In the Part 4 IM review final decision we explained our decision to not adopt forecast inflation.¹⁸⁹ We noted that using forecast inflation exposes both end-users and service providers to inflation risk:

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.

3.262 For the same reasons as set out above, our draft decision for the asset valuation IM provides for the use of actual (rather than forecast) CPI when indexing the RAB under ID regulation.

¹⁸⁹ 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

Adjustments to the RAB following deregulation

Draft decision

- 3.263 Our draft decision is that following a deregulation review under s 210 of the Act and a decision to deregulate by the Minister, the asset valuation IM will provide for:
- 3.263.1 Identifying assets directly attributable to the deregulated component of regulated FFLAS, and removing the deregulated component from the main RAB.
 - 3.263.2 Applying the cost allocation IM over time to identify the value of shared assets attributable to the deregulated component of regulated FFLAS, and removing that component from the main RAB.
 - 3.263.3 A reduction in the value of the loss asset commensurate with the reduction in the aggregated original UFB asset value remaining in the main RAB at the time of deregulation.

Rationale for removing assets from the RAB following deregulation

- 3.264 Section 210 of the Act allows the Commission, post-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 and/or ID regulation. This then raises the issue of whether assets supporting deregulated services are removed from the RAB, in which case:
- 3.264.1 Deregulated FFLAS will no longer be accounted for within the determination of allowed revenues under PQ regulation.
 - 3.264.2 Deregulated FFLAS will no longer be accounted for within performance assessments, eg profitability, under ID regulation.
- 3.265 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 means to remove the cost component relating to deregulated assets from the RAB. Underpinning this approach is the distortion leaving deregulated assets in the RAB can have competition implications for the 'deregulated markets'.
- 3.266 Under PQ regulation, the removal of assets from the RAB due to deregulation may affect the ability of providers of regulated FFLAS to recover the full costs of the remaining regulated assets from the remaining end-user base of regulated FFLAS.

3.267 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.¹⁹⁰

Symmetric treatment for main RAB and financial loss asset

3.268 Our draft decision is to maintain symmetric treatment and remove the cost component relating to deregulated assets from both the main RAB and the financial loss asset.

3.269 We consider that the ability to recover revenue from the financial loss asset is closely linked to the ability to recover revenue from the main RAB. This means that, as the size of the RAB decreases due to removing deregulated cost components, so does the ability to recover revenue from the financial loss asset.

3.270 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.

3.271 In the context of PQ regulation, leaving the deregulated cost components in the cost base and having this cost reflected in allowable revenue may mean that the regulated provider can shift the recovery of costs from unregulated (ie, deregulated) services to regulated services. To the extent that competition is thriving in the relevant unregulated market, the ability to shift costs may increase the regulated provider's competitiveness relative to its competitors. In the absence of similar opportunities to shift costs, other firms operating in the deregulated market would be at a competitive disadvantage relative to the regulated provider.

3.272 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).

3.273 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.

¹⁹⁰ 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.

Approach to removing cost components from the RAB following deregulation

- 3.274 The process for removing cost components from the RAB following deregulation relies on:
- 3.274.1 The regulated providers' asset information system, by requiring the identification of assets directly attributable to the deregulated component of regulated FFLAS and removing the deregulated component from the main RAB.
 - 3.274.2 The cost allocation IM, by requiring the application of the cost allocation IM over time to identify the value of assets not directly attributable to the deregulated component of regulated FFLAS, and removing that component from the main RAB.
- 3.275 To the extent that a deregulated FFLAS service relates to clearly identifiable assets, such as 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.
- 3.276 To the extent that the deregulated FFLAS service involves shared assets —with regulated FFLAS, and potentially other services—the application of the cost allocation IM will identify the cost component to be removed from the RAB. For the main 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.
- 3.277 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 draft decision is to reduce the value of the financial loss asset commensurate with the percentage reduction in the aggregate original UFB asset value remaining in the main 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 3.275 and 3.276. Note that this means that regulated providers need to be able to identify over time the value UFB assets in the RAB at the time of implementation.

Other key components of the asset valuation IM

- 3.278 In the following section we discuss our draft decisions relating to:
- 3.278.1 specification of asset granularity in the RAB;
 - 3.278.2 intangibles;
 - 3.278.3 sale and purchase of assets; and
 - 3.278.4 vested assets.

Specification of asset granularity in the RAB

Draft decision

3.279 Our draft decision is:

- 3.279.1 to prescribe a minimum level of granularity that regulated providers must provide when recording assets in the RAB, rather than imposing highly prescriptive requirements. Our chosen minimum level of granularity is set out in **Table 3.1** below;
- 3.279.2 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.

Table 3.1: Minimum level of asset granularity

Category	Level
Network layer	Layer 1, layer 2, other
Asset type	Feeder fibre, distribution fibre, roadside cabinet, customer premises equipment, etc
Geographic location	Address, building, area
Shared with other parties	Shared with entity #
Shared with other services	Shared with power lines, copper telco cables/assets
Special assets	Assets supporting unbundling, assets relating to a POI
Non-UFB initiative assets	FFLAS assets that were not deployed as part of the UFB initiative are required for the past losses calculation (1 December 2011 to 31 December 2021)

Background/explanation of our position

3.280 In the emerging views paper, we framed the issue of asset granularity (also referred to as the degree of 'RAB disaggregation') as:

What minimum level of specificity should be required for identifying assets and asset values in the RAB?

- 3.281 We need to consider the level of asset granularity that is necessary to support regulatory purposes under Part 6, such as cost allocation and removal of deregulated assets. There are several reasons why we must prescribe at least a minimum level of RAB disaggregation that all regulated providers must comply with when recording assets in their RAB. These include:
- 3.281.1 we are required to apply the requirements of the Act, which imposes some requirements regarding granularity (such as excluding non-UFB initiative assets from the calculation of the losses (s 177));
 - 3.281.2 in order for information to be comparable between different regulated providers, we will require a minimum level of consistent information on assets;
 - 3.281.3 our ability to remove assets from the RAB, should this be required (eg, due to a sale of part of the asset base, or in the case of deregulation), will be influenced by the degree of granularity of the information recorded for assets in the RAB;
 - 3.281.4 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;
 - 3.281.5 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.
- 3.282 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 under 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 by geographies and network layer and so on.
- 3.283 Setting granularity requirements seeks to capture appropriate information 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.

Discussion of submitters' views on asset granularity

- 3.284 While some submitters argued for a more prescriptive approach to asset granularity,¹⁹¹ others favoured a less prescriptive approach.¹⁹²

¹⁹¹ See 2degrees "Submission on Commerce Commission Fibre Regulation Emerging Views Paper" (16 July 2019) pages 11-12; Spark "Fibre regulation emerging views: technical paper" (16 July 2019) pages 18-19.

3.285 Chorus have previously submitted that there is a need to balance the desire to have some degree of disaggregation with the need to adopt a process that is workable.¹⁹³

3.286 In our emerging views paper, we set out our view that asset granularity will not be highly prescriptive. Enable and Ultrafast supported this position, submitting:¹⁹⁴

Asset information is currently recorded in a logical manner which reflects physical asset types and depreciation categories based on expected life. This is sufficient for the RAB asset register.

Additional allocations of assets (e.g. by service, customer type or geography etc.) should not be prescribed in the IM. Allocations are likely to change over time, as the demand for and scope of the regulated services change. These changes can be revealed through ID reporting requirements, which is sufficient and will ensure the IM is durable. This is also consistent with the Emerging View on the cost allocation IM which is principle based, not prescriptive.

3.287 We set out some potential disaggregation categories in Attachment C to the emerging views paper.¹⁹⁵ In response, Enable and Ultrafast submitted that the relevant RAB disaggregation categories for regulated providers subject only to ID regulation to be limited to:

3.287.1 service type: layer 1, layer 2, and CO/POI co-location;

3.287.2 asset types: reflect LFC current physical asset descriptions as recorded for GAAP reporting requirements; and

3.287.3 geography: UFB candidate area or network architecture.

3.288 In response to the emerging views paper, certain submitters suggested we adopt a more prescriptive approach to asset granularity. For example, on behalf of Spark, TERA submitted that the risk of regulated operators determining the level of disaggregation is that they:¹⁹⁶

“could be incentivized to propose a quite low level of granularity that lowers transparency and increases information asymmetries”.

¹⁹² Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), page 31 at 11-16; Enable Networks and Ultrafast Fibre "Submission on NZCC fibre regulation emerging views: Technical paper" (16 July 2019) page 15; Northpower "Submission on Fibre regulation emerging views: Technical Paper" (16 July 2019) page 3.

¹⁹³ Chorus "Submission on new regulatory framework for fibre" (21 December 2018) at 163.

¹⁹⁴ Enable Networks and Ultrafast Fibre "Submission on NZCC fibre regulation emerging views: Technical paper" (16 July 2019), page 15.

¹⁹⁵ Commerce Commission "Fibre regulation emerging views - Technical paper" (21 May 2019), Attachment C

¹⁹⁶ TERA consultants - Study on potential cost over-recovery in the BBM model for fibre services - Report for Spark" (31 July 2019), page 25.

- 3.289 TERA advocate for an amended approach to ensure that the building blocks model granularity adopted under Part 6 is at least the same as the granularity of the Total Service Long Run Incremental Cost (**TSLRIC**) model used in the Unbundled Copper Local Loop (**UCLL**) Final Pricing Principle (**FPP**) determination.
- 3.290 We consider that seeking to fully align with the TSLRIC model granularity approach is impractical. The building blocks model adopted under Part 6 will be based on actual networks and accompanying records kept by the regulated providers.

Rationale

- 3.291 The choice of a particular level of asset granularity requires a judgement call, balancing the desire to have a high degree of granular information available against the cost and practicality of the collection of that data. We consider our draft decision, to set a minimum level of granularity and require regulated providers to capture relevant information to allow decisions on cost allocation to be made, best achieves this balance.
- 3.292 The reason we have adopted the minimum level of granularity set out in **Table 3.1** above 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, under s 162 (a) and (d). 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)). We consider that imposing a prescriptive approach would involve relying heavily on the Commission's judgement of the optimal level of granularity: a judgement which is susceptible to error based on information asymmetry (particularly at this stage of regulation) and would need regular revision.
- 3.293 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.
- 3.294 If we take a completely flexible approach and set no minimum requirements for the information that regulated providers must supply, we may not have 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.¹⁹⁷ Without this granularity we cannot determine investments made under the UFB initiative, as required.

¹⁹⁷ The financial losses are based on unrecovered returns on investments made under the UFB initiative (S 177(3)(a)).

3.295 On the other hand, we consider a highly prescriptive approach to asset granularity is impractical for the following reasons:

- 3.295.1 the dynamic and complex nature of FFLAS and the telecommunications markets (ie, 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 (expanded on below);
- 3.295.2 setting requirements based on the information currently available would likely lead to the requirements becoming out of date within the first regulatory period, leading to a need for constant amendment;
- 3.295.3 we need to avoid increasing compliance costs for regulated providers by requiring 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; and
- 3.295.4 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.

3.296 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.

Example of difficulties of determining basis for more prescriptive approach

3.297 As an example of the difficulty of determining the basis for a more prescriptive approach, consider 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.

3.298 We would expect that Geographic Information Systems (**GIS**) operated by the regulated providers will assist with developing the information required. However, it will not be practical to reflect the spatial data contained in the GIS in an asset register.

Risks associated with low level of granularity linked with cost allocation

- 3.299 There will also be a risk to the regulated providers if they seek to provide 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 mean 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.
- 3.300 As an example, consider fibre cables that contain several fibres each, serving a mix of regulated FFLAS end-users and copper (telecommunications services that are not regulated FFLAS) end-users in a given geographic area. Different levels of disaggregation of assets might lead to different allocations of the shared fibre cable costs as follows:
- 3.300.1 In a scenario with a low level of granularity, only the total dollar values of fibre splitters, lead-in fibre and copper cabinets terminating the cables are available. A decision is therefore made to allocate costs based on a proxy driver of a 50%/50% split of customers; or
- 3.300.2 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.
- 3.301 We note that different allocations of shared costs to regulated FFLAS could distort incentives to innovate and invest between the services sharing the assets.
- 3.302 Chorus has consistently stated that they operate 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 sharing to be identified with a high degree of accuracy. This “one network” view will also mean significant cost allocation is expected to be necessary.
- 3.303 For example, 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:
- 3.303.1 a power system (general mains reticulation, 50V DC power system and engine alternator back-up) which serves a network building;
- 3.303.2 a shared transport system that aggregates traffic from multiple services; and
- 3.303.3 assets that change use over time.

3.304 We expect that LFCs other than Chorus will have considerably less sharing of assets, with sharing being mainly between Part 6 and Part 4 assets.

Conclusion on our draft decision regarding minimum level of granularity

3.305 We consider that the level of granularity we have adopted in our draft decision, as set out in **Table 3.1** above, 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) (see cost allocation section).

Treatment of intangibles

Draft decision

3.306 Our draft decision is that regulated providers:

- 3.306.1 may include in their RAB intangible items consistent with the meanings under GAAP, provided that they are identifiable non-monetary assets that are not goodwill.¹⁹⁸
- 3.306.2 must exclude working capital and goodwill from their RAB values.

Rationale

3.307 Intangible assets can be defined as “identifiable non-monetary assets without physical substance”.¹⁹⁹ 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:

- 3.307.1 this is consistent with the Part 6 purpose; and
- 3.307.2 the assets are used to supply the regulated FFLAS.²⁰⁰

¹⁹⁸ See accounting standard NZ IAS 38, paragraph 24.

¹⁹⁹ NZ IAS 38, paragraph 8.

²⁰⁰ Noting that this is all FFLAS post implementation but limited to UFB FFLAS for the loss period.

3.308 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:²⁰¹

3.308.1 it is capable of being separated or divided from the entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, asset or liability, or arises from contractual or other legal rights; and

3.308.2 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.

3.309 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.

3.310 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.

3.311 **Table 3.2** below summarises the treatment of the different types of intangibles, with further information on reasons for their treatment in **Attachment C** Asset Valuation - Treatment of intangibles.

Table 3.2: 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 WACC)
Right of use assets	Generally consistent with GAAP

²⁰¹ NZ IAS 38, paragraphs 12, 21-22.

Sale and purchase of assets

Draft decision

- 3.312 Our draft 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:
- 3.312.1 Where assets are purchased from another regulated provider or another entity regulated under Part 6 or Part 4, the vendor'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 vendor's RAB value.
 - 3.312.1.1 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 main RAB and is involved in the sale.
 - 3.312.2 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.
 - 3.312.2.1 The financial loss asset amount that is removed 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 main RAB and is involved in the sale.
 - 3.312.3 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:
 - 3.312.3.1 (a) 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
 - 3.312.3.2 (b) an objective and independent measure must be used in determining the terms of an arm's-length transaction for the purpose of paragraph (a).

Rationale

- 3.313 The rules we apply to certain sales and purchases of assets used to provide regulated FFLAS complement GAAP rules. They are targeted at avoiding outcomes that are not consistent with outcomes in workably competitive markets. It is useful to distinguish between transactions involving fibre service providers and:
- 3.313.1 other entities that are not regulated;
 - 3.313.2 another service provider regulated under Part 6 or Part 4;
 - 3.313.3 an entity that is a related party.
- 3.314 Our draft 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 the Part 6 purpose. We discuss each of these types of transactions below.
- 3.315 Note that to the extent applicable the IM provisions relating to goodwill apply (refer to **Attachment C** Asset Valuation - Treatment of intangibles).

Transactions involving unregulated entities

- 3.316 The GAAP approach does not raise any concerns for arms' length transactions between regulated providers and an unregulated entity. Consistent with GAAP:
- 3.316.1 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.
 - 3.316.2 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 financial loss asset amount that is removed 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 main RAB and is involved in the sale.

3.317 For a regulated provider, recovery of the value of the financial loss asset is intrinsically linked to selling services based on the non-loss 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 being subject to regulation under Part 6. As such, the buyer would become a regulated entity under Part 6. We describe the treatment of the financial loss asset sold to a regulated entity below.

3.317.1 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 buyer's 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.

3.317.2 To ensure consumers of telecommunication services do not also pay for the value transferred to the unregulated entity, 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 main RAB and is involved in the sale.

Transactions involving another service provider regulated under Part 6 or Part 4

3.318 Where a regulated provider buys 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. Otherwise returns over the life of the asset could exceed the total cost of owning and operating the asset in the combined books of the vendor and purchaser. Such an outcome would not be consistent with the objective of limiting the ability of fibre service providers to extract excessive profits (s 162(d)). It could incentivise service providers to trade assets unnecessarily to justify higher prices.

3.319 In workably competitive markets, service providers are not able to increase prices simply because assets have been traded between 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 vendor's carrying RAB value of the asset should be added to the RAB value of the purchaser and deducted from the vendor's RAB value.

3.320 For a regulated provider recovery of the financial loss asset is intrinsically linked to selling services using the non-loss RAB. If a portion of the loss asset is not transferred as part of the sale of the non-loss assets, it becomes unrecoverable and ex-ante FCM is not achievable. For example, suppose the regulated provider sells 99% of their non-loss RAB, but retains 100% of the associated financial loss asset. It is not viable to generate income off 1% of the physical asset base to recover the total loss asset.

- 3.321 Since the overall value recognised in the combined books of seller and buyer is limited to the pre-sale RAB value, we need to determine a rule for the treatment of the loss asset.
- 3.322 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 main RAB and is involved in the sale.

Transactions involving a related party

- 3.323 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.
- 3.324 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.
- 3.325 These situations could harm end-users of both FFLAS and other telecommunications services who, as a result of the related party relationship, would pay higher prices for or receive lower service quality from 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.²⁰²
- 3.326 To limit the potential harm to end-users our draft 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:
- 3.326.1 (a) 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
 - 3.326.2 (b) an objective and independent measure must be used in determining the terms of an arm's-length transaction for the purpose of paragraph (a).

²⁰² A reduction in the efficiency of the regulated service reduces competitive pressure in the telecommunications market, thereby harming end-users in general.

3.327 This valuation rule is also used under Part 4 regulation.²⁰³ 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.

3.328 Similar to sales to an unregulated service provider, a portion of the loss asset will also be transferred as part of the sale to ensure compliance with FCM.

Treatment of vested assets

Draft decision

3.329 Our draft decision is that:

3.329.1 regulated providers must include vested assets in the RAB value at the cost to the regulated provider, consistent with the cost-based approach to additions, and with the approach to capital contributions.

3.329.2 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.

3.329.3 Where assets are vested at no cost to the regulated provider, the RAB value of those assets is nil.

Rationale

3.330 The reasons for treating vested assets as per the draft decision are the same as for capital contributions. We consider that the net approach will:

3.330.1 simplify the assessment of capital contributions as an input to the capex building block under PQ regulation; and

3.330.2 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.

²⁰³ Commerce Commission “Input methodologies review – related party transactions, Final decision and determinations guidance” (21 December 2017)
https://comcom.govt.nz/data/assets/pdf_file/0029/59591/Related-party-transactions-Input-Methodologies-review-Final-decision-and-determinations-guidance-21-December-2017.pdf

Cost allocation IM

Introduction to the cost allocation IM

- 3.331 The main function of the cost allocation IM is to determine 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.
- 3.332 Regulated providers often provide services other than regulated FFLAS, as well as providing several different types of regulated FFLAS. The total cost of supplying two or more types of 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 also creates questions regarding how to allocate the shared costs.

Summary of draft decisions for the cost allocation IM

Allocation of costs between regulated FFLAS and services that are not regulated FFLAS	
1.	All costs that are directly attributable to regulated FFLAS must be allocated to regulated FFLAS.
2.	All costs that are not directly attributable to regulated FFLAS or to other services must be allocated using the ABAA.
3.	The allocation of shared costs to regulated FFLAS should be no higher than the unavoidable costs that would be incurred if services that are not regulated FFLAS were not to be supplied.
4.	Regulated providers shall choose and justify the causal cost allocators, and suitable proxy cost allocators if causal allocators are not available.
5.	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• asset values, a circumstance in which a factor influences the utilisation of an asset:<ul style="list-style-type: none">○ For ID regulation, during the disclosure year in respect of which the asset allocation is carried out○ For PQ regulation, in the forecast year.
6.	Where a regulated provider uses a proxy allocator to allocate costs, the regulated provider must explain why a causal relationship cannot be established and explain the rationale for the choice of proxy allocator.
7.	Regulated providers must apply the cost allocation IM to determine the operating costs in the categories that will be required under ID.
8.	The avoidable cost allocation methodology (ACAM) and the optional variation to accounting-based allocation approach (OVABAA) methodology will not be available to the regulated providers under this IM.
9.	We will review allocators and the reasoning for using these allocators provided by regulated providers. If we find that any allocators selected do not meet review criteria, such as consistency, objectivity, or result in cost allocations that exceed the level that would occur using alternative relevant allocators, then we may take further action.

Allocation of costs between different types of regulated FFLAS

10. There will be no prescriptive cost allocation IM rules for allocating shared costs between different types of regulated FFLAS for the first regulatory period.
11. Regulated providers shall separately identify directly attributable costs and shared costs based on characteristics including geographic coverage, individual products or product groups, or level of network functionality.

Cost allocation rules applicable to the calculation of the financial loss asset in the initial RAB

12. All costs (including operating costs and depreciation in accordance with s 177(1)(b)) that are directly attributable to the UFB initiative must be allocated to the financial loss asset.
13. For the financial loss asset, directly attributable costs will be defined as those solely employed for the UFB initiative during the financial loss period.
14. All shared costs (including operating costs and depreciation in accordance with s 177(1)(b)) that relate to the UFB initiative must be allocated using ABAA using an allocator of our choice. Our default list of allocators is:
 - a. number of connected customers or end-users or premises;
 - b. number of ports;
 - c. revenue;
 - d. central office space;
 - e. peak traffic;
 - f. average traffic.
15. Shared costs, that are attributable to the UFB initiative, must be allocated using measures and statistics that are reviewed and updated for each disclosure year (or part disclosure year) of the loss period.
16. A cap on costs allocated to the UFB initiative based on unavoidable costs will apply for assets that were shared between the UFB initiative and non-UFB initiative services, and for repurposed assets.

Cost allocation rules applicable to avoiding double recovery

17. We do not propose to have a cost allocation IM specific to double recovery during the past loss period.
18. Regulated providers must not double recover the costs shared across services regulated under Part 4 of the Commerce Act and Part 6 of the Act.

Cost allocation requirements specific to PQ regulation or ID

19. Cost allocation IMs specific to the financial loss asset will apply to ID, and not PQ regulation.
20. For ID, regulated providers must update the measures and statistics used for allocation at least once every 12 months and review the choice of allocators at least once every 18 months.
21. For ID, when establishing its initial RAB, each regulated provider must apply the same cost allocators as those used for calculating its financial loss asset.
22. For PQ regulation, regulated providers must use the same or a comparable approach to forecast dimensions of the PQ proposals for regulated FFLAS and services that are not regulated FFLAS. The above forecasts will be reviewed as part of the PQ review process, rather than as part of the ID process.
23. 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.

Court or other statutorily imposed penalties

24. Court or other statutorily imposed penalties will be explicitly excluded from operating costs incurred in providing the regulated FFLAS.

How we have structured this chapter

- 3.333 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, as different approaches to allocating shared costs will result in different levels of costs being attributed to regulated FFLAS. This in turn may have an impact on the prices that will be allowed to be charged under PQ regulation.
- 3.334 This chapter sets out the following areas listed below:
- 3.334.1 Allocation of costs between regulated FFLAS and services that are not regulated FFLAS.
 - 3.334.2 Allocation of costs between different types of regulated FFLAS.
 - 3.334.3 Cost allocation rules applicable to the calculation of the financial loss asset in the initial RAB.
 - 3.334.4 Avoiding double recovery.
 - 3.334.5 Cost allocation requirements specific to ID or PQ regulation.
 - 3.334.6 Treatment of Court or other statutorily imposed penalties.

Context for the cost allocation IM

The role of the cost allocation IM

- 3.335 This chapter describes our draft decisions on the IM for the allocation of costs between regulated FFLAS and any other regulated or unregulated services (services that are not regulated FFLAS) provided by the same regulated provider.²⁰⁴ 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.

²⁰⁴ 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.

- 3.336 The regulated providers offer a range of services. For example, in addition to supplying regulated FFLAS, Chorus provides regulated copper services and unregulated services. Regulated providers will often use shared or common assets (such as poles, ducts, and 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.
- 3.337 The cost allocation IM covers the allocation of shared asset values (which drive capital costs) and shared operating costs. We use the term ‘shared costs’ and ‘common costs’ interchangeably to refer to costs that are common to two or more types of services, but are not directly attributable to an individual service.
- 3.338 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 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 types of 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.
- 3.339 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. This means that the cost allocation IM is consistent with s 162(c).

How the cost allocation IM interacts with other IMs

- 3.340 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 RAB of each regulated provider.
- 3.341 The asset valuation IM sets out how each regulated provider’s assets are to be initially valued, including the treatment of the financial loss asset. The cost allocation IM sets the rules for how the shared assets that each regulated provider owns on implementation date are to be allocated between regulated FFLAS and services that are not regulated FFLAS. This will result in the allocated RAB on implementation date.
- 3.342 The RAB is rolled forward over time to reflect movements in the RAB – see paragraphs 3.180-3.187. Capital additions (ie, expenditure on new assets) added to the 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.

- 3.343 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 and will also be depreciated after implementation date.

How the cost allocation IM applies to PQ and ID regulation

- 3.344 The Act provides for the IMs to apply to both PQ regulation and ID under s 175 of the Act. According to s 175, a relevant IM must be applied by each regulated provider in accordance with determinations made under s 170 in relation to PQ and ID regulation.
- 3.345 In setting the revenue allowance for a PQ path, we will ultimately choose the allocators used to share costs between regulated FFLAS and services that are not regulated FFLAS.
- 3.346 Under ID, the cost allocation IM is important in terms of how information is to be collected, recorded, and used to calculate values (such as for the initial RAB and subsequent RABs). This may include information that will help us to assess whether the cost allocation requirements in the IM are being properly applied.
- 3.347 We can also provide incentives for regulated providers to meet the objectives of the Act by publishing ID disclosures. 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.
- 3.348 The provisions of s 168 and s 177 mean that the rules for calculating the financial loss asset will be applied under ID and that this asset is added to the initial value of the RAB. Although the initial value of the RAB, including the financial loss asset, 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.
- 3.349 This is different to PQ regulation, which will be forward-looking. In developing our draft decisions on cost allocation, and in particular the level of prescription to be applied in respect of the financial loss asset, we have taken into account the backward-looking nature of the financial loss asset calculation.

Requirements under the Act

- 3.350 We are required by s 176(1)(a) of the Act to develop methodologies for evaluating or determining several matters in respect of the supply of regulated FFLAS. These include:
- (iii) allocation of common costs (for example, between activities, businesses, access seekers, regulated services, or geographic areas).

3.351 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.²⁰⁵ This is relevant to cost allocation as the unbundled fibre service is likely to be provided using shared assets and operational processes.

Decision-making framework

The promotion of the purpose of IMs: Section 174

3.352 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, consistent with s 174 of the Act.

The promotion of the purpose of Part 6: Section 162

3.353 The cost allocation IM must also best give, or be likely to best give, effect to the purposes described in s 166(2). In promoting the purposes in s 166(2) of the Act, we must make decisions that we consider best give, or are likely to best give, effect:

3.353.1 to the purpose in s 162 of the Act, and

3.353.2 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.²⁰⁶

3.354 We consider that our draft decisions in the cost allocation IM are likely to best give effect to the purpose in s 162. Of relevance are the outcomes specified in sections 162(c) and (d) of the Act:

3.354.1 Section 162(c): Allowing end-users 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 and 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.

²⁰⁵ 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.

²⁰⁶ Section 166(2)(b) of the Act.

- 3.354.2 Section 162(d): Limiting the ability of regulated providers to extract excessive profits. Allocating shared costs between regulated FFLAS and services that are not regulated FFLAS in a consistent way for the initial RAB, including the financial loss asset, 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 and thus, gives effect to s 162(d).

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

- 3.355 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 draft decisions on the cost allocation IM, we have applied the high-level 'competition screening' considerations which we discuss from paragraph 2.253 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.
- 3.356 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 all shared costs were to be allocated to regulated FFLAS:
- 3.356.1 other services supplied using the shared asset would only have to recover their incremental cost. This would allow the prices for those other services to be set more competitively.
 - 3.356.2 the competitive position of regulated FFLAS would be worsened, as regulated FFLAS would bear its entire stand-alone cost.
- 3.357 We consider the promotion of workable competition is also relevant for cost allocation between different types of regulated FFLAS. Several types of 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:
- 3.357.1 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.
 - 3.357.2 a layer 1 FFLAS (such as an unbundled GPON service) can be used as an input into a layer 2 service, potentially in competition with the layer 2 service provided by regulated providers.

3.358 The allocation of shared costs between different types of regulated FFLAS is 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 types of 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, we have had regard to the promotion of competition in different telecommunications markets in developing our proposed approach to cost allocation.

Relevant economic principles

3.359 Of the key economic principles outlined in **Chapter 2**, we applied the real FCM principle in reaching our draft decisions in the cost allocation IM. 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 assigned to regulated FFLAS, this in turn may affect investors' ability to maintain the financial capital employed in the supply of regulated FFLAS over time.

How this decision fits into the wider context of setting IMs relating to the supply of regulated FFLAS

- 3.360 The cost allocation IM has close interdependencies with the asset valuation IM, the capital expenditure IM and ID and PQ regulation.
- 3.361 Our analysis includes consideration of the impact of potential decisions relating to cost allocation on our proposed asset valuation and Chorus capex IMs.
- 3.362 We have considered the draft decisions of other IMs when making cost allocation decisions to ensure alignment with decisions set out in those IMs. 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 initial RAB, subsequent RABs and the treatment of the financial loss asset. 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 operation of the BBM in ID. We also considered the specific needs of PQ regulation, and our draft decision includes cost allocation rules specific to PQ regulation such as for forecasting demand relating to shared costs.

3.363 We also considered the differences between the regulated providers, and the implications of the transition from copper to regulated FFLAS. This included considering that Chorus is a larger organisation that provides a diverse range of telecommunications services that often share assets and operational processes. As such, Chorus' business operation involves higher levels of asset and operational expenses sharing 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 over time.

Key types of costs and cost allocation methodologies

3.364 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). Costs can therefore be distinguished between those 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).

3.365 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):

3.365.1 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 the services that are supplied using the duct;

3.365.2 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.

3.366 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 through revenues from the sale of the second service at least the directly attributable costs 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.

3.367 Consistent with the s 162 purpose, we would therefore expect the same outcome to be achieved through the rules set in the cost allocation IM for regulated providers.

3.368 When assessing the costs of a service or a group of services, the presence of shared costs raises the issue of how to allocate such costs 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 larger. It is therefore important to consider at what level to allocate costs. In the current context, cost allocation is important for several reasons including:

3.368.1 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.²⁰⁷ This includes the determination of the following:

3.368.1.1 the assets to be included in the initial RAB;

3.368.1.2 the calculation of the value of the past financial losses to be included in the initial RAB;

3.368.1.3 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.

3.369 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 associated with a given service or group of services. The following cost allocation methodologies were considered in reaching our draft decisions:

3.369.1 Accounting-based allocation approach (ABAA): under ABAA, each service would bear the directly attributable incremental 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 drivers ('cost allocators') or proxies where such allocators are not available.

²⁰⁷ As discussed earlier in this paper, the s 226 regulations have not yet been made, but we expect all of Chorus' FFLAS to be subject to both PQ and ID regulation; and all of the other regulated providers FFLAS to be subject to ID regulation only.

- 3.369.2 Optional variation to accounting-based allocation approach (OVABAA): under OVABAA, a regulated provider could choose to allocate more 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 which 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 a statutory requirement that is not present in Part 6.
- 3.369.3 Avoidable cost accounting methodology (ACAM): the allocation of the shared cost would be based on an assessment of the proportion of the shared cost that would not be avoidable, were the firm not to supply the unregulated service. That proportion would be allocated to the regulated service.

Level of prescription

- 3.370 For each aspect of cost allocation, we have considered how prescriptive the IM should be. Our approach to determining the level of prescription for each cost allocation rule depends 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).
- 3.371 When determining the level of prescription, we considered several factors including:
- 3.371.1 the specific market context, including the level of asset and cost sharing in the regulated FFLAS market;
 - 3.371.2 ensuring that regulated providers have sufficient flexibility in order to be able to adapt to dynamic changes, which leads to innovation and efficiency that can be shared with end-users, which promotes s 162(c).
 - 3.371.3 the objectives in s 166(2) described above and the need to provide certainty about the regulation as required by s 174, including the ability for regulated providers to estimate the material effects of the IMs;
 - 3.371.4 the degree of certainty in market outcomes;
 - 3.371.5 dynamic changes to the sector including customer take-up;
 - 3.371.6 the potential for technology changes as well as the potential impact from future competition on regulated FFLAS.

- 3.372 Submissions in response to our proposed approach paper and our emerging views paper differed on the question of how prescriptive our approach to cost allocation should be.²⁰⁸ The regulated providers preferred a less prescriptive approach to cost allocation, while the larger access seekers argued for a more prescriptive approach.^{209,210,211}
- 3.373 In reaching these draft decisions, we also considered the potential for information asymmetry between the Commission and regulated providers. Axiom, on behalf of Spark, recognised the issue of information asymmetry, and submitted that the requirements should include some constraints on what allocators the regulated provider may use to avoid the regulated provider 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.²¹²
- 3.374 Chorus submitted that while there may be issues around information asymmetry, there was also a need to consider protection of regulated providers' commercial confidentiality.²¹³
- 3.375 We agree with Axiom in principle that there should be some constraints on the choice of allocators and our draft decisions include several constraints. For example, we propose 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.
- 3.376 We consider the PQ review process under s 209 of the Act to be an effective way towards 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.
- 3.377 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 consultation on the ID requirements.

²⁰⁸ Commerce Commission "Fibre regulation emerging views - Technical paper" (21 May 2019), page 65.

²⁰⁹ For a regulated provider example, Enable Networks and Ultrafast Fibre "First cross-submission on NZCC fibre regulation emerging views: technical paper" (31 July 2019), page 16.

²¹⁰ For an access seeker view, Axiom Economics "Fibre regulation emerging views - A report for Spark" (July 2019), page 4.

²¹¹ For an access seeker view, Vocus communications "Fibre regulation emerging views Cross-submission to Commerce Commission" (31 July 2019), paragraphs 38-42.

²¹² Axiom Economics "Fibre regulation emerging views - A report for Spark" (July 2019), pages 8-9.

²¹³ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), Appendix A, paragraph 86.

- 3.378 We also consider that to develop an overly prescriptive approach to the cost allocation IMs at the outset increases the risk of embedding a sub-optimal IM into the regime. A less prescriptive approach to cost allocation, by placing fewer restrictions on future options, provides more potential for the regime to be adaptable to future changes in market circumstances and increased levels of access to information, both of which can be factored into our future decision-making process under PQ and ID regulation and that of regulated providers.
- 3.379 In our view, a less prescriptive approach does not equate to less certainty or undermine the purpose of IMs in s 174 of the Act. Rather, we consider that it enables future changes to be accounted for and in this way, it affords regulated providers a greater degree of certainty. In particular, 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.
- 3.380 We note Chorus' submission about the need to consider confidentiality. We anticipate addressing confidentiality in our later work on PQ and ID regulation.

Allocation of costs between regulated FFLAS and services that are not regulated FFLAS

Draft decision

- 3.381 Our draft decisions on the allocation of costs between regulated FFLAS and services that are not regulated FFLAS are set out below.
- 3.381.1 All costs that are directly attributable to the regulated FFLAS must be allocated to the regulated FFLAS.
- 3.381.2 All costs that are not directly attributable to the regulated FFLAS or to services that are not regulated FFLAS must be allocated using ABAA.
- 3.381.3 The allocation of shared costs to regulated FFLAS should be no higher than the unavoidable costs that would be incurred if services that are not regulated FFLAS were not to be supplied.
- 3.381.4 Regulated providers shall choose and justify the causal cost allocators, and suitable proxy cost allocators if causal allocators are not available.
- 3.381.5 Causal allocators are to be chosen when there is a causal relationship which means, in relation to:
- 3.381.5.1 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;

3.381.5.2 asset values, a circumstance in which a factor influences the utilisation of an asset:

- (a) for ID, during the disclosure year in respect of which the asset allocation is carried out
- (b) for PQ, in the forecast year.

3.381.6 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.

3.382 Regulated providers must apply the cost allocation IM to determine the operating costs in the categories that will be required under ID.

3.382.1 For the avoidance of doubt, the ACAM and the OVABAA methodology will not be available to the regulated providers under the IM.

3.383 We will review regulated providers' choice of allocators and the reasoning they provide in support of the use of these allocators. If any are found not to meet our review criteria, then we may scrutinise the allocator further and may take further action. For example, we could note the impact of alternative allocators in our summary and analysis reports or use alternative allocators for our anchor services review decisions under s 208 of the Act. Our review criteria may include consistency, objectivity, and how material the choice of the allocator is to the value of costs attributed to regulated FFLAS.

Rationale for draft decisions

3.384 This section discusses how shared costs should be allocated between regulated FFLAS 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 (eg, sharing access to poles) or general property rental.

3.385 This section applies to cost allocation for the ongoing annual disclosures under ID and PQ regulation. It also applies to establishing the initial RAB for 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). As well as non-UFB initiative assets post-2011 — but not for the treatment of the financial loss asset, which is discussed later in this chapter.

Our draft decision is to use ABAA for the allocation of shared costs between regulated FFLAS and services that are not regulated FFLAS

- 3.386 Our draft decision is to use ABAA for the allocation of shared costs between regulated FFLAS and services that are not regulated FFLAS. We also propose to introduce a cap on the shared costs allocated to regulated FFLAS, based on the unavoidable costs that would be incurred if services that are not regulated FFLAS were not supplied.
- 3.387 We consider that our draft decisions on the rules for allocating costs between regulated FFLAS 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 end-users of regulated FFLAS, 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.
- 3.388 In reaching this draft decision, we consider that the fully allocated cost methodologies used in the Part 4 regime are the most appropriate methodologies to consider for Part 6. The reasons for this are that fully allocated cost approaches:
- 3.388.1 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), since 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;
 - 3.388.2 work well in conjunction with the building block methodology and in applying the economic principle of FCM; and
 - 3.388.3 enable costs to be identified and allocated to different services. This approach gives effect to the Part 6 purpose at s 162(c) given it will support the sharing of efficiency gains with end-users by regulated providers offering multiple services; and
 - 3.388.4 are more appropriate than alternative approaches for ID purposes as they are easier for stakeholders to understand.
- 3.389 We considered the range of cost allocation methodologies used in Part 4, including ABAA, OVABAA and ACAM. We also considered options for the type of allocators to use in specific situations such as whether to preclude regulated providers from using certain proxy allocators or to put restrictions on the use of proxy allocators.

3.390 Defining a causal relationship is a step that is required to allocate shared costs to specific activities. This will provide guidance to regulated providers 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 regulated FFLAS and 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)) since FFLAS end-users do not bear the full costs of assets used to supply other services as well.

Our draft decision is not to use ACAM or OVABAA

- 3.391 For the avoidance of doubt, our draft decision means that regulated providers may not use ACAM and OVABAA when allocating shared costs between regulated FFLAS and services that are not regulated FFLAS. This section explains our reasons for this draft decision.
- 3.392 We consider that in most cases, ACAM would not lead to outcomes consistent with those produced in workably competitive markets. Under ACAM, shared costs would be allocated to regulated FFLAS to the extent that they would be non-avoidable if services that are not regulated FFLAS were no longer supplied. Axiom has previously recommended that ACAM should not be an allowable option in the cost allocation IM, as the ACAM approach would allocate a disproportionate share 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.”²¹⁴
- 3.393 ACAM was originally allowed under the Part 4 regime. It was however removed from the IM as a cost allocation methodology for EDBs and gas pipeline businesses (GPBs) in the 2015/2016 IM review, although it was retained as a cap on total costs allocated to regulated services.
- 3.394 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 expect this rationale to apply for regulated providers under Part 6, given the substantial share of common costs in telecommunications networks.
- 3.395 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. The treatment of the financial loss asset is discussed later in this chapter.

²¹⁴ Axiom on behalf of Spark, “New regulatory framework for fibre” (21 December 2018), page 26-27.

- 3.396 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 had to make an ABAA-based contribution to any costs that it would be sharing with regulated services.
- 3.397 Chorus 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:²¹⁵
- 3.397.1 under OVABAA, entry into unregulated markets would not be distorted, as the unregulated service would bear at least its incremental cost; and
 - 3.397.2 any additional complexity from applying OVABAA is not a concern, as it will not be activated unless the benefits are sufficiently material to justify the administrative costs.
- 3.398 OVABAA was introduced in Part 4 to satisfy the statutory requirement of section 52T(3) of Part 4 for which there is no corresponding requirement in Part 6.
- 3.399 The value in having OVABAA as an option 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 OVABAA – in other words, whether other drivers such as cost minimisation and responding to competition are likely to lead to such investments.
- 3.400 There are some instances where Chorus appears to have undertaken new investment in innovative services (or is proposing to do so), such as the installation of optical network terminals (ONTs) with ‘in-home’ wireless capability inside end-user premises; fibre to the desktop; cloud computing servers; trial of 10Gbps GPON,²¹⁶ and trialling the use of FWA technology for the lead-in to the end-user premises.²¹⁷
- 3.401 In our view however, the above instances of new investment by Chorus do not support the need to apply OVABAA to promote competition or innovation.

²¹⁵ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), Appendix A, paragraph 106.4-106.5.

²¹⁶ See <https://company.chorus.co.nz/chorus-supercharges-new-zealands-broadband-10gbps-trial>

²¹⁷ 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.

- 3.402 For example, the use of WPON as a lead-in technology can reduce the incremental cost of the lead-in and avoid issues around property access (e.g. shared driveways) relative to installing a fibre lead-in. As such, WPON may be a cost-effective alternative way to provide 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.
- 3.403 We do not consider that OVABAA is appropriate for the reasons set out below.
- 3.404 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 of the requirement in s 166(2)(b), since allowing regulated FFLAS to bear a larger share of the shared costs will affect their competitive position relative to other technologies used as inputs in downstream (retail) markets.
- 3.405 In addition, the threat that new technologies will emerge in future 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 reuse existing assets. Example 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 innovation could include introducing new or improved FFLAS services. Such investment is likely to occur even in the absence of OVABAA, given the likely emergence of competition in future (such as from other regulated providers and/or unbundlers).
- 3.406 In addition, Chorus may need to invest to meet the service level requirements of our determinations for copper services. Examples of these determinations include the FPP determinations and the Standard Terms Determination for Chorus' Unbundled Bitstream Access Service (UBA).²¹⁸ This investment is also likely to occur in the absence of OVABAA.
- 3.407 The use of OVABAA to increase the proportion of shared costs allocated to regulated FFLAS may have an adverse effect on competition in downstream and parallel markets (e.g. for unbundlers who wish to provide their own edge servers). Thus, allowing the use of OVABAA, will in our view, not best give effect to the requirement to promote competition to the long-term benefit of end-users of telecommunications services in s 166(2)(b).

²¹⁸ 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).

3.408 If OVABAA was permitted as a cost allocation methodology for fibre, it would need to be carefully prescribed, (which, for the reasons set out in 3.378, is not considered the best approach for the cost allocation IM). Careful prescription would be required because in areas of technological innovation, new assets can often provide 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), but should an existing user want to change to a new ONT, then the entire ONT must be replaced (which may include a technician visit) which can be costly.

Capping the shared costs allocated to regulated FFLAS

3.409 Our draft decision is to introduce 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 not supplied.

3.410 We consider that applying a cap prevents regulated providers from earning excessive profits which is in line with s 162(d). This approach also allows efficiencies to be shared with end-users: s 162(c).

3.411 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. For example:

3.411.1 In the case of ducts that house copper and fibre cables, the cost of the duct will be shared. As demand for copper disappears, the cost of the duct would be allocated to regulated FFLAS. Although the size of the duct may be larger than what would be deployed in a new fibre-only network (even allowing for future growth), the cost of the reused duct is sunk, and as a result, the costs avoided when copper services are discontinued will be small.

3.411.2 In the case of an exchange building, as copper-based equipment is retired, this will free up space in the exchange. In this scenario, where the excess space in the exchange 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 exchange 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 exchange 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 (i.e. the regulated FFLAS would not carry those costs).

- 3.411.3 In the case of decommissioning copper where the regulated provider repurposes a cabinet from shared copper and fibre to be solely used for regulated FFLAS, our draft decision will mean that the concurrent costs associated with the change would be capped based on the unavoidable costs and so 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.
- 3.412 This differs from a stand-alone cost cap as proposed by several parties. For example, Spark submitted that the level of shared costs allocated to FFLAS should be capped at the cost of providing FFLAS on a stand-alone basis.²¹⁹ 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 RAB. Spark gave the example of ducts, noting that a fibre network is unlikely to require large duct systems used for legacy copper services.
- 3.413 Chorus has deployed its FFLAS network by taking advantage of existing assets such as exchanges and ducts. In a submission and our s 9A fibre study, 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. Chorus said it expects that the extent of sharing of assets to support regulated FFLAS will increase over time.^{220 221}
- 3.414 Chorus has previously noted that reuse of assets that pre-date the UFB initiative in delivery of the UFB initiative was significant and gave the example of ducts, which are a major component of Chorus’ asset base, as being planned to have 40% reuse.²²² 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.²²³

²¹⁹ Spark "Fibre emerging views submission" (16 July 2019), paragraph 38.

²²⁰ Commerce Commission “Fibre 9A study report” (17 December 2018), paragraph 44.1.

²²¹ 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.

²²² Commerce Commission “Final pricing review determination for Chorus’ unbundled copper local loop service” (15 December 2015), paragraph E163, E194.

²²³ For example. Chorus annual report 2019, For example Notes 1 Network assets and Note 10 to the financial statements, indicate that these assets are subject to ongoing depreciation.

- 3.415 As demand transitions from the legacy copper-based network to the new fibre-based network, this transition could result in excess capacity (ie, unused space in ducts, space in exchange buildings) which would not have been needed if a stand-alone fibre network were being deployed. For example, an efficiently dimensioned 'greenfield' fibre network might require smaller ducts than a network dimensioned for copper, even allowing for future growth.²²⁴
- 3.416 In our view however, there are several potential issues with Spark's specific proposal to cap the shared costs allocated to regulated FFLAS:
- 3.416.1 Spark's proposal to have reference to the costs of a new stand-alone fibre network 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. However, under a BBM approach, we are looking at setting a revenue cap for Chorus with reference to a RAB that takes account of reuse of existing assets that are shared between copper and fibre services.
 - 3.416.2 The stand-alone cost of deploying a new fibre-only network would include the cost of installing new shared assets such as ducts and exchanges. In this scenario, the relevant cost of a reused asset is not its replacement cost, but rather the depreciated value of the asset. The use of the book value of those assets is likely to be lower than the stand-alone 'new' costs of those assets.
 - 3.416.3 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 small.
- 3.417 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 exchange buildings), that capacity could be deployed for services that are not regulated FFLAS. In this scenario, such reuse and sharing should be captured through the cost allocation between regulated FFLAS and those services that are not regulated FFLAS.

²²⁴ 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.

3.418 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 is likely to better reflect conditions consistent with outcomes in a workably competitive market, and allows for sharing efficiencies from relying on ‘reused’ assets with end-users, giving effect to s 162(c).

Implementation of ABAA

3.419 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 reason set out at 3.379 above). One of the main reasons is that a less prescriptive approach is better suited to an environment of high future uncertainty.

3.420 We consider that uncertainty exists in relation to technology changes, uptake of FFLAS, and the level of cost sharing between regulated FFLAS and services that are not regulated FFLAS, and between different types of regulated 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 an overly prescriptive approach to have unintended problems in its application that may require bespoke solutions.

3.421 Our approach to allocating costs between regulated FFLAS and services that are not regulated FFLAS, aims to:

3.421.1 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);

3.421.2 ensure costs are not over recovered due to double recovery (limiting regulated providers in their ability to extract excessive profits – s 162(d));²²⁵

3.421.3 mitigate potential risks to competition through the misallocation of costs to regulated FFLAS (giving effect of our obligations under s 166(2)(b)).

3.422 Requiring regulated providers to allocate directly attributable and non-directly attributable costs is an essential component of a cost-based reporting regime. It is important that costs are allocated to support the purposes of the regulatory regime.

Commission’s review of allocators chosen by regulated providers

3.423 In the Emerging Views Paper, we proposed that for the past loss period, cost allocation proxies should be consistent, objective, measurable (verifiable), and timely.

²²⁵ We discuss how we approach double recovery later in this chapter (see from paragraph 3.518).

- 3.424 The choice of multiple 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 different approaches to selection of allocators are likely to have a material impact on past losses and network assets in the initial RAB.
- 3.425 Axiom for Spark considered that the choice of allocators needed more guidance and oversight to prevent allocators being chosen that did not best serve the promotion of competition objective set out in s 166(2)(b). They recommended that the cost allocation IM 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.²²⁶
- 3.426 Having reviewed the submissions and considered the wider context of Part 6, our draft decisions is that the review of cost allocators proposed by the regulated providers subject to PQ regulation can be undertaken via the PQ process. The 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.
- 3.427 The allocators used by all regulated providers for ID will be reviewed as part of our analysis leading into our future summary and analysis reports. Allocators will also be reviewed during future pricing reviews.
- 3.428 We still consider that the principles we proposed in the emerging views paper, such as consistency and objectivity, are relevant. We anticipate that we will consider these principles when reviewing PQ proposals, preparing summary and analysis reports and pricing reviews. Accordingly, we expect the regulated providers to apply these principles in applying the cost allocation IMs. For example, we expect that the regulated providers will apply ABAA consistently across reporting periods and similar types of information and take account of all available financial and operational data that is relevant to an asset or operating expense.
- 3.429 When we review regulated providers' choice of allocators, we anticipate that we will consider the level of cost allocated to regulated FFLAS relative to that which would have been allocated using other allocators. If the level of cost for major cost items or groups of costs materially varies from that which other relevant allocators yield, we may scrutinise the allocation further, provide feedback, 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 more causal relationship as a cap on shared operating costs in our pricing reviews.

²²⁶ Axiom Economics "Fibre regulation emerging views - A report for Spark" (July 2019), pages 9-10.

- 3.430 In order to provide guidance to regulated providers, we have proposed a list of allocators that we are likely to use for benchmark comparisons when reviewing regulated providers' allocations in this chapter's section on the financial loss asset. We expect that in choosing cost allocators, the regulated providers will consider the suitability of the allocators in this list.
- 3.431 We recognise that in applying cost allocators there may be situations where it may be more appropriate to not apply the same allocator across all items in an asset type or operating cost category (eg, due to technical factors). In such cases, we expect that regulated providers would recognise this and apply different cost allocators at a more disaggregated level, but to do so in a consistent manner.
- 3.432 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).
- 3.433 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

- 3.434 Review of submissions and considerations of the ongoing transition from copper to fibre indicate that different cost allocation outcomes can result depending on whether causality is viewed as the long-term use of the asset (eg, UFB) or whether it also factors in other uses of the asset, such as at the start of its life. This effect is also supported by our review of Chorus' responses to section 98 notices and current ID.
- 3.435 Section 177(6)(b) of the Act, includes as part of the definition of a fibre asset, the fact that it is "employed in the provision of FFLAS".
- 3.436 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.
- 3.437 As such, our draft definition of causality includes how an asset is employed ('influences the employment') to provide regulated FFLAS.

- 3.438 This draft 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 draft decision therefore is consistent with the purpose of Part 6 under s 162(c).
- 3.439 In applying this definition, 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).
- 3.440 We consider that this definition of causality 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.
- 3.441 We also considered the more prescriptive option of explicitly stating that for fibre assets, including those commissioned after the start of the UFB initiative, meeting the service level requirements of the FPP determination is to be regarded as a causal driver of investment. We did not proceed with this option as we consider the definition of causality can be worded to address usage for both regulated FFLAS and services that are not regulated FFLAS.

Cost granularity

- 3.442 We consider that having a consistent approach to cost granularity across cost allocation and asset valuation is important to the effective implementation of the BBM in ID. This is because the cost allocation IM will be applied to the unallocated asset values and if assets are removed from the RAB.
- 3.443 Our proposed approach to the granularity of costs, including operating costs is described above in the asset valuation chapter.

3.444 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, some asset types are disaggregated at a lower level than is reported for asset valuation purposes in the RAB, then each disaggregated item should directly map to one and only one of the asset categories used for asset valuation purposes in the RAB.²²⁷ Equally, the sum of each asset type's disaggregated items should equal the aggregate value reported in the RAB.

Use of readily available data

3.445 In our emerging views paper, we explained how the level of aggregation at which network data is prepared influences the level of cost allocation required for a network with multiple services provided over shared assets and/or processes.

3.446 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 also work for operating expenses.

3.447 Our review of information provided in response to s 98 requests and under current ID confirmed this effect applies to regulated FFLAS when the regulated provider also supplies services that are not regulated FFLAS using shared network assets.

3.448 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.

²²⁷ 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.

- 3.449 Reducing the scope for variance in cost allocation should improve the accuracy of disclosures and proposals and hence 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 of a regulated provider being able to extract excessive profits, and in doing so will promote 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 positions of regulated FFLAS relative to other services used as inputs in downstream (retail) markets is not distorted.
- 3.450 We expect that in practice, the compliance costs of this draft 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 ID and the section 9A study into fibre services that all regulated providers keep records about their network assets.²²⁸ We also note that the smaller regulated providers are part of groups that are already allocating costs under Part 4 and hence should be familiar with the requirements and already have systems in place.
- 3.451 We considered the alternative, more prescriptive, option of requiring regulated providers to use data from the fixed asset registers and GIS databases. However, we determined that this approach would be inconsistent with the general principle of not imposing highly prescriptive requirements for cost allocation. This approach would be difficult to implement, particularly for future decisions we will have to make under PQ regulation, as it would require our IMs to define exactly what information is best or reasonable in each case (eg, making decisions for each asset or operating expense for each regulated provider, specifying multiple levels of materiality).

Allocation of costs between different types of regulated FFLAS

Draft decision

- 3.452 For the first regulatory period, our draft decision is that there will not be prescriptive cost allocation IM rules for allocating shared costs between different types of regulated FFLAS.
- 3.453 Regulated providers shall separately identify directly attributable costs and shared costs based on regulated FFLAS families that differ in configuration but bear essentially the same costs, geographic coverage and level of network functionality or other functionality.

²²⁸ Commerce Commission “Fibre 9A study report” (17 December 2018), paragraphs 25-29.

Rationale for draft decision

- 3.454 The allocation of common costs between different types of regulated FFLAS can inform our future assessments of the structure of regulated FFLAS prices under ID regulation. Cost allocation between regulated FFLAS can also promote efficient outcomes for the long-term benefit of end-users of specific regulated FFLAS. How prices are structured for different FFLAS may have impacts on the emergence or development of competition between regulated FFLAS and other services used as inputs in downstream (retail) markets, such as mobile broadband, and layer 2-based competition from unbundlers. For example, without appropriate cost allocation, regulated providers might price regulated FFLAS used as inputs into downstream markets (eg, DFAS or PONFAS) at a level that makes these services non-viable for potential competitors to downstream products relying on layer 2 regulated FFLAS.
- 3.455 The potential for the promotion of actual competition is an important feature of Part 6 of the Act, recognised in s 166(2)(b) of the Act. The requirement for the Commission to consider, to the extent it considers it relevant, the promotion of workable competition in telecommunications markets for the long-term benefit of end-users distinguishes Part 6 of the Act from Part 4.²²⁹ In the telecommunications sector, there is more potential for infrastructure-based competition to emerge. This could include competition from fixed wireless services (eg, dedicated wireless broadband or 5G mobile), and other fixed line services (eg, hybrid fibre-coaxial).
- 3.456 There is also greater potential for access-based competition, such as where an access seeker purchases an unbundled fibre service. As regulated providers offer a suite of access products, the relative prices for wholesale services will affect access seekers' decisions on 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.
- 3.457 At this stage, we have focussed our analysis on *whether* we should allocate costs between regulated FFLAS rather than on *how* to allocate costs. Dependent on the commercial outcome from unbundling the layer 1 FFLAS, regulated providers may be required in future 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 can distinguish between many layer 1 and layer 2 costs.

²²⁹ Refer to Regulatory Framework chapter.

3.458 As the allocation of shared costs between different types of 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 types of regulated FFLAS. This rule will also allow us to assess whether prices reflect efficient costs of supplying different types of regulated FFLAS. In our view, this high-level approach best gives effect to s 162(c) and s 166(2)(b).

3.459 In reaching this view, we have also 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 types of regulated FFLAS are likely to be mitigated for the following reasons:

3.459.1 Chorus has to offer unbundled layer 1 services on an equivalent non-discriminatory basis from 1 January 2020. As discussed at paragraph 2.12, 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 allow access seekers to compete with vertically integrated regulated providers (in this case, the vertical integration between layer 1 and layer 2 FFLAS).

3.459.2 DFAS pricing is capped at the contract price for the first regulatory period, and so cost allocation would have no impact on the maximum price for DFAS in that first period.

3.460 As noted by both Enable and Ultrafast Fibre, information on costs and cost allocation between FFLAS can be gathered via ID to better inform the Commission on the level and nature of costs shared between different type of regulated FFLAS.²³⁰ Such information will reveal shared costs based on several characteristics, including geographic coverage, individual products (in the case of unbundled access services), or regulated FFLAS families, and the level of network functionality.

3.461 After the first regulatory period, both the regulated providers and we will have a better understanding of the shared use of assets between different types of regulated FFLAS. We can then consider whether more prescriptive rules should be set for allocating costs between different types of regulated FFLAS. In this regard, we agree with Chorus:²³¹

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.

²³⁰ Enable Networks and Ultrafast Fibre "Submission on NZCC fibre regulation emerging views: technical paper" (16 July 2019), page 16.

²³¹ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), page 115.

- 3.462 Several parties have argued that a more prescriptive approach should be taken to the allocation of common costs between different types of regulated FFLAS 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.²³²
- 3.463 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.
- 3.464 In contrast, 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. Chorus submitted that “the same assets are used to deliver a range of different services”,²³³ which means that there would be arbitrary allocation due to high sharing with no clear causal driver.

Level of disaggregation for future allocation of costs between regulated FFLAS

- 3.465 If in the future we see value in allocating costs between regulated FFLAS, we consider that any allocation between regulated FFLAS should be at a product family level and not a product variant level. This reflects our understanding that often FFLAS product families that are provided using common elements can have pricing differences that may reflect market demand factors, rather than a cost-plus pricing structure. By reducing the level of disaggregation, more costs will be directly attributed to FFLAS product families and hence provide more insight into this dimension of the FFLAS cost structure.
- 3.466 Further, products within FFLAS product families are likely to face similar levels of (potential) competition and are more likely to be (reasonably) close substitutes from the end-users’ perspective, thus limiting the scope for regulated providers to price strategically within a FFLAS product family. This implies that there may be limited value in requiring cost allocation at a level that is more granular than a FFLAS product family. We also expect it would be particularly complex for regulated providers to break costs down to this additional level of detail.

²³² Axiom on behalf of Spark, “New regulatory framework for fibre” (21 December 2018), pages 12, 17, 18.

²³³ 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

3.467 We understand that some costs have clearer causal relations with specific FFLAS product families or regions than others. For example, splitters and distribution fibre may be identifiable with specific end-users on a limited number of known products (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 family, 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 types of regulated FFLAS.

3.467.1 Both examples above have implications for the extent to which regulated providers should be expected to apply the cost allocation IM, and hence the extent to which costs are viewed as common between different types of regulated FFLAS. These considerations also have implications for later work on ID and any future analysis that might arise should we choose to adopt a pricing principle or set a pricing IM for future regulatory periods.

3.468 Our general expectation is that if cost allocation was applied between regulated FFLAS, costs should be disaggregated to the level that supports FFLAS product families (eg, all GPON based bitstream services as one family) and likely future regulatory scenarios, such as unbundling or geographic deregulation.

Allocation of costs between regulated FFLAS for the first regulatory period

3.469 To help with future decisions on the allocation of costs between regulated FFLAS, regulated providers shall in the first regulatory period, the first regulatory period identify directly attributable costs and shared costs based on FFLAS product families. As we have set out above, individual product variants would be grouped into FFLAS product families that differ in configuration but bear essentially the same costs. For example, the cost difference between bitstream 2 and bitstream 3 products is substantively similar cost structures as they are delivered over the same network in the same way and would both be part of the same FFLAS product family.

3.470 We have grouped the regulated FFLAS into product families at paragraph 2.63 above. As guidance, we suggest that this grouping would be an appropriate level at which to identify the allocation of costs between different types of regulated FFLAS.

Cost allocation rules applicable to the calculation of the financial loss asset in the initial RAB

Draft decision

3.471 Our draft decisions for the cost allocation rules applicable to the financial loss asset are:

3.471.1 All costs (including operating costs and depreciation in accordance with s177(1)(b)) that are directly attributable to the UFB initiative must be allocated to the financial loss asset.

- 3.471.2 For the financial loss asset, directly attributable costs will be defined as those employed solely for the UFB initiative during the past loss period.
- 3.471.3 All shared costs (including operating costs and depreciation in accordance with s 177(1)(b)) that relate to the UFB initiative must be allocated using ABAA using an allocator of our choice.²³⁴
- 3.471.4 Shared costs, that are attributed to the UFB initiative, must be allocated using measures and statistics that are reviewed and updated for each disclosure year (or part disclosure year) of the loss period.
- 3.471.5 For the avoidance of doubt, shared costs are not to be allocated using the ACAM or OVABAA methodology.
- 3.471.6 A cap on costs allocated to the UFB initiative based on unavoidable costs will apply for assets that were shared between the UFB initiative and non-UFB initiative services, and for repurposed assets.

Rationale for our draft decision

Context for our draft decision

- 3.472 For cost allocation as it applies specifically to the financial loss asset, we considered most of the issues discussed earlier in this chapter, but within the context of calculating the financial loss asset.
- 3.473 For the financial loss asset, cost allocation is between the UFB initiative and non-UFB initiative expenditure, rather than between regulated FFLAS and services that are not regulated FFLAS. In practice, this means that some regulated FFLAS costs and revenue will be treated as non-UFB costs and revenues and hence will not be included in the financial loss asset. This reflects the fact that during the period prior to the UFB initiative implementation date, the regulated providers have also offered FFLAS outside of the UFB initiative. For example, Chorus provides FFLAS services in areas that were awarded to the other regulated providers under the UFB initiative or are not covered by the UFB initiative.
- 3.474 We recognise that the financial loss asset calculation will be impacted by the availability of data, and the inability to capture data that has already been lost (eg, information that was not kept in databases).

²³⁴ Under our proposed building block approach for past losses (as presented in the asset valuation chapter), depreciation is not directly subject to cost allocation. Rather the cost allocation IM rule to use ABAA will be applied to the unallocated value of the shared assets. Depreciation will then be calculated from the allocated value of the shared asset and added to the past loss.

- 3.475 The financial loss asset calculation differs from the ongoing annual maximum allowable revenue (**MAR**) calculations under PQ regulation in that the financial loss asset calculation will cover approximately ten years of past activity dating back to December 2011. As the financial loss asset calculation is backward-looking, it will not impact the incentives and decision making of the regulated providers for the period to which it relates.
- 3.476 We consider that the above factors support increases in the level of prescription and simplification for the cost allocation rules that apply specifically to the financial loss asset relative to allocations after the implementation date.
- 3.477 However, we do consider that ABAA should be used for cost allocation for the financial loss asset. We consider that it is important to recognise the effect of non-UFB services for Chorus as during much of the past loss period, these services will have represented the majority of Chorus' revenue.
- 3.478 In developing our view on the cost allocation rules for the financial loss asset, we have also considered the issue of potential over-recovery of costs, particularly for over-recovery relating to the services covered by our FPP determinations.

Allocation of shared costs in the calculation of the financial loss asset

- 3.479 Our draft decision is to use the ABAA approach for the allocation of shared costs in the calculation of the loss asset, for the following reasons:
- 3.479.1 It is consistent with the draft decision on cost allocation of assets for the initial RAB and for the reasons outlined from paragraph 3.386 above, it is the approach that in our view best gives effect to the purposes described in s 166(2).
- 3.479.2 It has a transitional and proportional effect (due to dynamic allocation) for shared costs that reflect that in 2011, UFB was incremental, new investment, but by implementation date will be the core, ongoing business. The need to consider this transitional impact was noted in Frontier's submission.²³⁵
- 3.479.3 It can apply to both Chorus and the other regulated providers.
- 3.479.4 It is robust for use of fibre technology for non-UFB purposes including UFB initiative assets being used to provide services that are not regulated FFLAS and vice versa.

²³⁵ Frontier Economics on behalf of Vodafone, "Submission on new regulatory framework for fibre" (21 December 2018), pages 2, 19.

- 3.479.5 It is consistent with the economic principle of FCM, including in terms of ensuring that Chorus receives a normal return on its investment in reused and common copper assets, particularly during the later years of the loss period when some of the assets will be increasingly, if not fully, used to provide UFB services.
- 3.480 We consider that for cost allocation to give effect to the Act's requirements and to the use of the building block approach to the financial loss asset, as decided by the asset valuation IM, the cost allocation IM should not preclude shared costs or significant groups of shared costs, as proposed by Vodafone.²³⁶
- 3.481 As explained earlier, due to the level of asset sharing in a telecommunications network this could preclude a material number of assets and operating costs from being considered in the financial loss asset calculation for Chorus in particular. Hence the approach proposed by Vodafone would not fulfil the requirement in s 177(3)(a) to take account accumulated unrecovered returns on these assets. Section 177(3)(a) states:
- 3.482 In determining the financial losses under subsection (2), the Commission—
- must consider any accumulated unrecovered returns on investments made by the provider under the UFB initiative.
- 3.483 The assets for which depreciation may contribute to the financial loss asset include UFB initiative assets, both pre-2011 assets and post 2011 non-UFB initiative assets. The proposed approach of using ABAA for those assets will also result in those assets being fully attributed to the financial loss asset if they are fully used (in a causal sense) for UFB purposes, as under ABAA a 100% allocation gives the same result as direct attribution. Conversely, our draft decision could see the depreciation on some UFB initiative assets excluded for some years from the financial loss asset. For example, if the asset was initially commissioned to support non-UFB initiative services (eg, supporting copper-based broadband services).
- 3.484 Several access seekers supported the use of ACAM in the calculation of the financial loss asset, where fibre is treated as the incremental service. According to these submissions, in determining the past losses associated with providing the UFB initiative services in the period from 2011 to the implementation date, only the incremental costs should be included, and all shared costs should be allocated to the existing services (such as copper-based services).²³⁷

²³⁶ Vodafone, "Fibre regulation emerging views Cross-submission to Commerce Commission" (6 August 2019), page 6.

²³⁷ For example, Vocus communications "Fibre regulation emerging views Cross-submission to Commerce Commission" (31 July 2019), paragraph 63.

- 3.485 We do not agree with the access seekers' proposal to determine past losses incurred in supplying UFB initiative services based on their incremental costs. Such an approach would load all shared costs onto the existing copper-based services, which are gradually being displaced by FFLAS. As demand transitions from copper to fibre, the costs of the shared assets used to supply both would be increasingly borne by a smaller pool of copper customers.
- 3.486 In our final decision on the UCLL FPP, the Commission referred to the migration of demand from copper to fibre as a 'death spiral', leading to escalating copper prices. The solution that was implemented in the FPP was to assume that the modelled network (which was a fibre-to-the-home network) served all copper and fibre demand. This ensured that shared costs are proportionately reallocated as demand migrates from copper to fibre. We also note that during the first regulatory period, increases in the regulated prices for copper services are limited to annual CPI adjustments under the standard terms determinations.
- 3.487 Chorus also made this point in responding to access seekers' submissions that shared assets should be excluded from the loss asset calculation. Chorus noted that:²³⁸

Copper prices were based upon the assumption that there was a hypothetical supplier operating a single network with 100% demand (i.e. prices were not just calculated on copper connections but included Chorus fibre and other LFC's fibre connections). In reality, Chorus could only recover 100% of the shared cost if all consumers were (and remained) on the copper network. As consumers migrate to FFLAS, the proportion of shared costs that Chorus can recover under the copper prices is falling proportionately. Therefore, an allocation of shared costs to FFLAS does not imply that Chorus will double recover costs. Instead Chorus should have the opportunity to recover costs related to providing FFLAS and be compensated for relevant financial losses in accordance with the legislation.

- 3.488 We consider that our earlier reasoning for having a cap on costs allocated to regulated FFLAS based on unavoidable costs applies to the calculation of the past financial loss asset. This reflects that the relevant issues around sharing and repurposed assets apply both before and after the implementation date.

Use of a more prescriptive approach for the financial loss asset

- 3.489 In the emerging views paper, we proposed that the cost allocation rules for the loss asset may be more prescriptive than for forward-looking allocations.²³⁹

²³⁸ Chorus "Cross-submission in response to the Commerce Commission's fibre regulation emerging views" (31 July 2019), paragraph 41.

²³⁹ Commerce Commission "Fibre regulation emerging views - Technical paper" (21 May 2019), page 82.

- 3.490 Chorus has submitted in support of a more prescriptive approach for calculating the loss asset. In its discussion of the initial RAB, Chorus expressed the view that the initial RAB includes past losses and was a ‘backwards-looking’ prescriptive exercise, in contrast to forward-looking cost allocations which Chorus submitted required a more principled approach.²⁴⁰
- 3.491 We agree with Chorus’ submission that the calculation of the financial loss asset for the initial RAB is a backward-looking exercise, which may require a more prescriptive approach. Frontier also supported a more prescriptive approach.
- 3.492 We consider that a more prescriptive approach to calculating the financial loss asset reflects that:
- 3.492.1 Past losses relate to past events where the specific context is known and there is little, if any, need to future-proof the approach for unknown future events.
 - 3.492.2 It relates to a transitional period when there is scope for uncertainty and information asymmetry in applying cost allocation. Hence the draft decisions are specific as to when a UFB initiative cost is directly attributable and how it should be treated when it is a shared cost. This promotes certainty for stakeholders (in line with s 174) and ensures that regulated providers are not able to over-recover costs (and consequently earn excessive profits), which is consistent with the requirements of s 162(d).
 - 3.492.3 The level of prescription should be reasonable in terms of compliance costs for the regulated providers. This is based on a review of the information disclosed under the current fibre ID regime, and section 9A disclosures, as well as Telecom’s past published accounting separation disclosures (a form of regulation that applied to both copper and fibre assets before the UFB initiative).
 - 3.492.4 There is potential for the financial loss asset, particularly in the case of Chorus, to include a high shared cost element. This potential was noted in Frontier’s submission.²⁴¹

²⁴⁰ Chorus “Submission in response to the Commerce Commission’s invitation to comment on its proposed on new regulatory framework for fibre dated 9 November 2018” (21 December 2018), paragraph 180.

²⁴¹ Frontier Economics on behalf of Vodafone, “Submission on new regulatory framework for fibre” (21 December 2018), pages 14-18.

3.493 On the other hand, the draft decisions have sought to avoid being overly prescriptive or context specific, but rather focus on categorisations which should broadly capture all relevant costs. We consider that an overly prescriptive approach would be time consuming to prepare as it would need to consider numerous issues, including many which may be subjective or involve information asymmetries (eg, what was the purpose of some investment, what was the counterfactual in the absence of the UFB initiative?)

Use of a more simplified approach for cost allocation applicable to the loss asset

3.494 The emerging views paper also proposed a general preference for simplifying the rules for cost allocation applicable to the loss asset. For example, this simplification may include making greater use of approaches used and data from the current ID regime or other existing data sets.

3.495 Chorus supported the use of a simplified approach to cost allocation rules for the financial loss asset, and in general supported our approach including use of annual data and aligning the calculation with existing data.²⁴²

3.496 Reasons for this simplification include the previously noted restriction on the available data, the need to undertake a calculation covering over ten years of activity, and that there is no need to future-proof the calculation. We also recognise that it may be difficult to obtain data that separates UFB initiative costs from non-UFB initiative costs (at least for some cost categories).

3.497 In some cases, this need for simplification will be reflected in how we apply the cost allocation IM to the loss asset, rather than in the IM itself. Possible examples include the following:

3.497.1 the cost allocation for the loss asset makes greater use of proxy allocators than may normally occur. For example, the regulated providers are already preparing regulatory disclosures that include information on a range of network attributes, some of which may be suitable proxy cost allocators.

3.497.2 In applying the cost allocation IMs to the loss asset, we may use a level of aggregation for assets and operating expenses that aligns more with existing data such as that prepared for the current ID or the fixed asset register, than that which will be in the future ID requirement. This reflects the realities of having to use data that is available and takes advantage of existing data and reporting processes.

²⁴² Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), Appendix A paragraph 88.

- 3.497.3 Simplifying asset types and operating expenses where there is a very minor and short-lived level of sharing and allowing full allocation to the UFB initiative. This approach is also likely to recognise that in some cases the short-lived sharing was a result of practical considerations and not a causal driver.
- 3.497.4 Using simplifying assumptions and proxies to separate UFB initiative costs from non-UFB initiative costs. For example, when the number of non-UFB connections is low and the impact of the simplifying assumptions does not have a material impact on the cost allocation.
- 3.498 We consider that this level of detail and approach to categorisation ensures there is enough transparency to prevent regulated providers from extracting excessive profits, and therefore meets the purpose of s 162(d). This approach should also reduce the compliance costs for regulated providers in providing us with information, and for us in calculating the financial loss asset.
- 3.499 We also note that the use of simplifications is consistent with Chorus' submission against being overly prescriptive or context specific. Instead, Chorus suggested that the approach should focus on categorisations which broadly capture all relevant costs.

Implementation of ABAA for the loss asset

- 3.500 In allocating costs to the financial loss asset, we will use a list of default allocators to allocate shared costs to simplify the calculations. We expect to use this default list for most cost allocations related to the financial loss asset. We may use additional allocators should there be a cost category for which none of the default allocators apply or there is a lack of suitable data.
- 3.501 We consider that having a limited number of allocators that we choose from can provide a degree of consistency in the cost allocation for the financial loss asset and will reduce compliance costs for the regulated providers. This is because the same allocator may be used across related cost types, and hence reduce the potential for picking and choosing in a manner that systematically leads to over (or under) recovery at an aggregate level. This approach also can reduce the scope and incentives for gaming which could occur if the process were to allow for a broader range of allocators.²⁴³ This helps achieves the purpose of s 162(d) to limit excessive profits.

²⁴³ In the calculation of the financial loss asset, this gaming could occur through the consultation process or via information requests. In other contexts, providing a broader range of cost allocation options could provide regulated providers with more options to game the process.

- 3.502 The proposed list of default allocators:
- 3.502.1 number of connected customers, end-users or premises;
 - 3.502.2 number of ports;
 - 3.502.3 revenue;
 - 3.502.4 central office space;
 - 3.502.5 peak traffic;
 - 3.502.6 average traffic.
- 3.503 We developed this list after considering information we received under current ID, our past modelling work for the FPP determinations, the accounting separation of Telecom and s 98 requests.
- 3.504 We consider that this list offers a range of allocators to provide a suitable allocator for the material cost categories, while at the same time drawing on existing and/or obtainable data about the likely allocators. For example, the regulated providers provide us with data about end-users and revenue under current ID.
- 3.505 We consider that the use of a limited number of allocators is particularly suited to the calculation of the financial loss asset, as this calculation relates to what will be known circumstances. Hence it does not need to be robust to future changes in market circumstances or to the scope of regulated services, both of which may justify the introduction of additional allocators.
- 3.506 We included revenue in the list of default allocators as it can be used in situations where there little or no cost-volume relationship or there is a lack of data. For example, it could be used to allocate corporate overheads. Revenues can be a robust proxy allocator in that it allocates costs to revenues that do not involve end-user connections or premises.
- 3.507 We consider that there may be some situations where the default allocators may not be appropriate for allocating costs to the financial loss asset. This may include situations where an alternative allocator is available and provides a materially better proxy for causality.
- 3.508 Another situation may be when it is impractical to apply the relevant default allocator due to issues with the availability, completeness or quality of the data. In this situation, the alternative allocator's data would act as a substitute for the missing or inadequate data, and in doing so allow for the cost allocation for the loss asset to be completed in a more timely and cost efficient manner (eg, avoiding the need to undertake data cleansing).

3.509 We considered an approach that would use the same or comparable allocators as those used in the UCLL and UBA services FPP.²⁴⁴ We did not choose this option due to differences in the two modelling approaches that would make it problematic to transfer many of the cost drivers from the TSLRIC model to act as cost allocators for the building blocks model (eg, different assumptions and engineering approaches, and the complexity of the TSLRIC model).

Causality: timing and other Commission determinations

3.510 As noted earlier in this chapter, our draft decision for cost allocation between regulated FFLAS and services that are not regulated FFLAS is that causality should be applied with consideration being given to how an asset is employed at each stage of its life.

3.511 We understand that there may be situations supporting different ratios of cost allocation to recognise the causal factors of UFB initiative assets being used to provide non-UFB initiative FFLAS (and vice versa). For example:

3.511.1 Situations where a UFB initiative asset is shared, even though the regulated provider (or a related party) would not have otherwise invested in upgrading its existing network to provide non-UFB initiative FFLAS and there is no material benefit to the later (eg, the asset was shared for convenience and the ability to share it was neither a causal driver for the investment).

3.511.2 Situations where there was material benefit involved in sharing the assets (eg, reduced maintenance and faults), but not enough to justify capital upgrades in the absence of the UFB initiative.

3.511.3 Situations when absent the UFB initiative, the regulated provider (or a related party) would have had to significantly upgrade its assets (eg, building new cabinets or poles to meet reasonable end-user or safety expectations).

3.512 Enable and Ultrafast submitted in support of the cost allocation rules for the financial loss asset using timely cost allocators. They considered that the financial loss asset cost allocation should accommodate changes in scale and scope of the service that is not regulated FFLAS over time.²⁴⁵

3.513 As with allocation of costs between regulated FFLAS and services that are not regulated FFLAS, our draft decision for defining causality in relation to the UFB initiative is to consider how the asset was employed. Our proposed definition of causality therefore includes how an asset is employed ('influences the employment') to provide UFB initiative services.

²⁴⁴ <https://comcom.govt.nz/regulated-industries/telecommunications/projects/ucll-and-uba-services-final-pricing-principle>

²⁴⁵ Enable Networks and Ultrafast Fibre "First cross-submission on NZCC fibre regulation emerging views: technical paper" (31 July 2019), page 17.

- 3.514 We consider that the reasoning that applies in relation to periods after implementation date (ie, for regulated FFLAS), also applies to the past loss period (ie, for the UFB initiative). In reaching this conclusion we recognised that in practice the investment decisions relating to the UFB initiative would often also relate to regulated FFLAS provided post-implementation date.
- 3.515 We also consider that this is particularly relevant to Chorus as during the past loss period, it would have been making decisions that needed to consider how expenditure benefited both UFB initiative and other non-UFB initiative services (eg, to meet customer expectations for data intense services such as streaming video over DSL). During this period, these other services represent significant revenue streams for Chorus, and it is likely that Chorus had incentives to protect these revenue streams by investing in the network appropriately.
- 3.516 In relying on this definition of 'causality' in our application of the cost allocation IM to the loss asset under PQ or ID regulation, we anticipate that consideration will be given to other commercial considerations such as co-location and fulfilling the service standards specified in the FPP determination. We also anticipate that the calculation will recognise that some sharing is incidental and hence is not causal (ie, does not require allocation of costs to the service for which it did not add benefit).
- 3.517 The cross-submission by Chorus supported an annual review of all allocator measures and statistics for the past loss period.²⁴⁶ We agree with this approach, as it would factor in changes to allocation in a dynamic market and is in line with current industry practice of annual reporting, such as for current ID requirements. The alignment of dates should reduce the effort needed to process data.

Avoiding double recovery

Draft decision

- 3.518 Our draft decision is that we will not have a cost allocation IM specific to double recovery during the past loss period.
- 3.519 Regulated providers must not double recover the costs shared across services that are regulated under both Part 4 and Part 6 of the Act.²⁴⁷

²⁴⁶ Chorus "Cross-submission in response to the Commerce Commission's fibre regulation emerging views" (31 July 2019), paragraph 116.

²⁴⁷ 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.

Rationale for draft decision

- 3.520 Several parties have submitted that the risks of double recovery of assets used to supply copper-based services (the prices of which were determined in the FPP) and regulated FFLAS have not been adequately addressed. Several parties submitted that we should give further consideration to the prevention or mitigation of double recovery between copper and regulated FFLAS in the case of Chorus, and between electricity distribution and regulated FFLAS in the case of the other regulated providers.²⁴⁸
- 3.521 Chorus submitted that while it is important to avoid double recovery because of the approach taken to cost allocation, it is equally important to ensure that cost allocation does not exclude any costs.²⁴⁹
- 3.522 Trustpower submitted that if Chorus has unrecovered returns on pre-2011 assets including those used for regulated FFLAS, these should not be included in the calculation of the loss asset, as they were not incurred because of the UFB initiative.²⁵⁰ Our reasons for including pre-2011 assets in the calculation of the financial loss asset are discussed in the asset valuation chapter in paragraphs 3.161 to 3.172.
- 3.523 In its submission on behalf of Trustpower, Link Economics stated:²⁵¹
- We agree with the Commission’s view that Chorus and LFCs must adopt the same approach that is proposed to allocate costs between regulated FFLAS and other services post-implementation date when determining the valuation of the initial RAB. A requirement to ensure consistency in selection of allocators over time, products, and geography would aid in avoiding over recovery, regulatory gaming or the use of market power to harm competition.
- 3.524 TERA on behalf of Spark submitted that additional steps should be taken to mitigate the risk of double recovery. This included additional levels of granularity to the level of the FPP TSLRIC model, adjusting the RAB, and monitoring the total cost recovered from other copper and fibre as a ‘cross check’.²⁵²
- 3.525 TERA also noted that the risk of double recovery is inherent when using two different modelling approaches with different principles to regulate two technologies.

²⁴⁸ For example, Trustpower "Trustpower submission: Fibre regulation emerging views" (16 July 2019), paragraph 3.6.

²⁴⁹ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), page 53.

²⁵⁰ Trustpower "Trustpower submission: Fibre regulation emerging views" (16 July 2019), paragraphs 3.5.8 to 3.5.9.

²⁵¹ Link Economics "Report on the Commerce Commission’s Emerging Views on Fibre regulation" (15 July 2019), page 7.

²⁵² TERA "Study on potential cost over-recovery in the BBM model for fibre services" (31 July 2019) pages 21, 26-27.

3.526 We agree with TERA in principle regarding the need to ‘cross check’ against the ‘total cost recovered from copper and fibre’. This need to consider the total costs was a factor in how we defined causality for the financial loss asset to reflect how an asset was employed, and to provide guidance that when ABAA is applied in calculating the financial loss asset, consideration should be given to other services, such as those covered by the FPP.

3.527 It was also a reason why we saw benefit in limiting the choice of allocators for the cost allocation to the financial loss asset to a defined set to reduce the risk of picking and choosing leading to over-recovery at an aggregate level. We consider that our preferred approach should involve lower compliance costs and be better suited to the available data than the approach proposed by TERA.²⁵³

Double recovery between copper and UFB initiative

3.528 We maintain our view that it would be impractical to fully ensure that there is no double or under-recovery regarding UFB initiative past losses and the FPP for the UCLL and UBA services, for the following reasons:

3.528.1 The Act sets out different methodologies for the FPP and for Part 6, which creates an inherent risk of double or under-recovery, as well as making any reconciliation problematic. Under the FPP, the prices for regulated copper services (the UCLL and UBA services) were set according to the legislated TSLRIC pricing principle. The Commission set TSLRIC prices based on forecasts and a hypothetical efficient operator model, which estimated the costs of building a new and optimised network from scratch. Conversely, under Part 6, the financial loss asset will be based on actual costs from real deployed networks.

3.528.2 Chorus provides services that are neither UFB nor UBA, but which draw on common costs.

3.528.3 Our experience with the FPP TSLRIC model indicates that the approach suggested by TERA of adopting TSLRIC level of granularity would significantly increase the cost of regulation and the time needed to undertake the increased level of modelling. We do not consider that the likely significant additional cost and inherent delay is justifiable, even if TERA’s approach was to provide some increased accuracy or transparency in the calculation. Rather, we consider that the extra delays from undertaking such complex modelling would add uncertainty to the Part 6 regime.

²⁵³ TERA “Study on potential cost over-recovery in the BBM model for fibre services” (31 July 2019), page 27.

- 3.529 We believe our proposed approach is the appropriate choice to mitigate the risk of double or under-recovery between copper and the UFB initiative given that:
- 3.529.1 In principle, ABAA is compatible with the cost allocation approach used in the FPP in that both approaches seek to assign shared costs in proportion to the cost allocator values.
 - 3.529.2 ABAA is reasonably robust to changes in customer mix for general overhead style costs. For example, if a Chorus customer was to migrate from a UBA-based service to Chorus UFB, at a high-level, ABAA would see the common cost being recovered via Part 6 (eg, into the financial loss asset), rather than recovered via the revenue received on prices set by the FPP decision.
- 3.530 For the reasons explained in paragraph 3.529 above, we consider that our draft decision regarding reducing the risk of double recovery between copper and regulated FFLAS is likely to best give effect to the purpose in s 162, in particular promoting the outcomes specified in s 162(c) and s 162(d).
- 3.531 Our draft decision to use of ABAA allows shared costs to be allocated dynamically over time as demand shifts from copper services to fibre services available under the UFB initiative. This is consistent with the approach taken in the FPP, where the level of demand modelled in the FPP was based on copper and fibre services. This approach allows for efficiency gains arising from economies of scope to be shared with end-users of fibre services supplied under the UFB initiative, promoting s 162(c)).
- 3.532 Our draft decision to prescribe a set of default allocators as part of the cost allocation rules applicable to the financial loss asset also limits the ability of Chorus to assign a disproportionate share of costs in order to inflate the UFB initiative past losses. In doing so, our approach mitigates the risk that Chorus will be able to earn excessive profits, as the scope for double recovery is reduced. This helps to promote the purpose of s 162(d) to limit regulated providers in their ability to extract excessive profits.
- 3.533 To ensure that ABAA is applied in a manner that minimises the risk of double or under-recovery of the costs of delivering the services covered by the FPP determinations, our draft decision provides for the FPP to be factored into cost attribution for shared costs. For example, the definition of causality (which limits direct attribution to those costs solely employed for UFB purposes during the past loss period), ensures that costs shared with the FPP will be subject to cost allocation which can factor in the FPP.

Double recovery between regulated FFLAS and services that are not regulated FFLAS

- 3.534 We also consider that our draft decision for allocation between regulated FFLAS and services that are not regulated FFLAS, as well as for ID and PQ is the appropriate approach to mitigate the risk of double or under-recovery, after implementation date, which will also be after the expiry of the FPP decisions.

- 3.535 Aspects of our approach that we consider should specifically mitigate the risk of double recovery include:
- 3.535.1 That ABAA assigns shared costs in proportion to their causality.
 - 3.535.2 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 not supplied. From paragraph 3.409 above we explain why this prevents excessive profits, which can constitute a form of double recovery.
 - 3.535.3 Specific requirements to prevent double recovery involving Part 4, as discussed below in “Double recovery between regulated FFLAS and other regulated services” (paragraph 3.536).
 - 3.535.4 Requirements that in PQ proposals, the regulated providers use the same (or a comparable) approach to forecast dimensions for regulated FFLAS and services that are not regulated FFLAS and that these forecasts will be subject to a review by us. This is discussed later in paragraphs 3.560 to 3.571.
 - 3.535.5 Several requirements and related guidance to ensure consistency and require justification of the choice of cost allocators to minimise gaming, which can be a source of double recovery (for example, paragraphs 3.381.3, 3.553 to 3.557, 3.569 to 3.571). An example of gaming to double recover costs would be changing the choice of allocators half way through an asset’s life to ensure that over the longer term, regulated FFLAS is assigned a higher share of depreciation than would have occurred had either allocator been used for the entire life of the asset.
- 3.536 As with double recovery for the past loss period, we consider that it is impractical to fully ensure and demonstrate that there is no double or under-recovery after implementation date, particularly for Chorus, given it offers a wide range of services. Reasons for this include that the modelling required would be comprehensive and very costly as it would require modelling of the cost recovery for all of Chorus’ services. Further, that after implementation date, there will not be an enforced, regulated cost model and pricing for many of Chorus’ services that are not regulated FFLAS (for example, copper services).

Double recovery between regulated FFLAS and other regulated services

- 3.537 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 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.

- 3.538 To address this risk, our draft decision is to make clear that double recovery is not permitted between regulated FFLAS under Part 6 and services regulated under Part 4 (several firms that are related to the regional LFCs are regulated under Part 4).
- 3.539 The draft requirement is worded to cover both cost allocation and related party transactions. We consider that this helps to achieve the purpose of Part 6, in particular s 162(d), that regulated providers are limited in their ability to extract excessive profits, as well as ensuring that efficiency gains from the use of shared assets are shared with FFLAS end-users, consistent with s 162(c).

Cost allocation rules specific to ID or PQ

Draft decisions

- 3.540 Cost allocation IMs specific to the financial loss asset will apply to ID and not PQ regulation.
- 3.541 Typically, when establishing ID:
- 3.541.1 regulated providers must update the measures and statistics used for allocation at least once every 12 months and undertake a review of the choice of allocators at least once every 18 months.
 - 3.541.2 when establishing its initial RAB, each regulated provider must apply the same cost allocators as those used for calculating its financial loss asset.
- 3.542 Typically, when establishing PQ regulation, regulated providers must use the same or a comparable approach to forecast dimensions of the PQ proposals for regulated FFLAS and services that are not regulated FFLAS. The above forecasts will be reviewed as part of the PQ review process, rather than as part of the ID process.
- 3.543 Regulated providers must apply the cost allocation approaches used for PQ to ID when the subsequent expenditure is reported, unless there is a justifiable reason to use an alternative approach.

Rationale for draft decisions

- 3.544 ID and PQ regulation each have certain aspects that are unique. This means that some aspects of the Cost Allocation IMs will only apply to one of either ID or PQ regulation.

- 3.545 The focus of PQ regulation is setting a forward-looking PQ path, using forecast information. On the other hand, ID regulation will generally use past or historical information on actual performance.²⁵⁴ ID regulation must address issues specific to the past loss period which do not apply to PQ regulation due to the latter relating to a time period after the past loss period. Longer term, the ID regime will often involve reporting on the actual outcomes relative to those that were forecast under the PQ proposals.
- 3.546 Due to these differences between ID and PQ regulation (ie, ID is backwards looking while PQ is forward-looking), cost allocation determinations will be different in some cases for each form of regulation.
- 3.547 We also note that any choices for cost allocators that we approve under the Capex approval process will have to be applied for that expenditure in subsequent PQ regulation and ID reporting.

Review of allocators by regulated providers for ID

- 3.548 Our draft decision, for review of the measures and statistics that regulated providers use in cost allocation, is to make use of the Part 4 definition of a “causal relationship”. However, we will apply a 12-month (rather than an 18-month) period for review of measures and statistics used for allocation. For review of the choice of allocators, 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.
- 3.549 The choice of allocator refers to the allocator that is measured (it is an enduring defined term); while measures and statistics refer to the actual values measured or estimated at a point in time. For example, if the allocator is end-users, the statistics may be 100,000 end-users subscribed to regulated FFLAS and 50,000 subscribed to services that are not regulated FFLAS at a specific date.
- 3.550 We consider that the measures and statistics should be updated (or forecast for PQ) at least annually to reflect the dynamic nature of the telecommunications sector, and in particular the transition from copper services to regulated FFLAS or 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.

²⁵⁴ ID can also include forward looking information such as asset management plans.

- 3.551 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.”²⁵⁵ This requirement only applies to the annual roll forwards under ID as it relates to the reporting of past information and the need to reconsider the appropriateness of allocators for changes over time. The choice of allocators for the financial loss asset calculation is discussed in the next section.
- 3.552 This requirement is not applicable for PQ regulation as all forecasts relating to changes in sharing will be made concurrently.

Choice of allocators for the initial RAB for ID

- 3.553 Establishing the initial RAB is a one-off exercise for the regulated providers subject only to ID.
- 3.554 Spark submitted that additional prescription may be needed in establishing the initial RAB and provided an example involving cost allocation involving assets used to provide copper services.²⁵⁶
- 3.555 We agree that cost allocation will be a significant issue for establishing the initial RAB of regulated providers subject only to ID, and that additional prescription is likely to provide increased certainty. The size and potential time and cost required to establish the initial RAB also favours the use of methods that simplify this work.
- 3.556 We also consider that applying the same approach of using a list of prescribed cost allocators to cost allocation for establishing the initial RAB, as for the financial loss assets, will promote certainty and reduce compliance costs (relative to the approach used for later periods).
- 3.557 This draft decision will see many of the cost allocators used for the financial loss asset applied to establish the initial RAB. These allocators are relevant as the implementation date is the day after the end of the loss period (ie, the closing point for the past loss period is the opening point for the initial RAB). This reuse of methodology should reduce the regulated providers’ cost in calculating the initial RAB.
- 3.558 This approach will allow the calculation of the initial RAB to lever off our work scrutinising cost allocator choices for the financial loss asset. We consider that this should help reduce risks of information asymmetry leading to gaming and over valuation of the initial RAB. This addresses some of the concerns raised in submissions and is likely to best give effect to the Part 6 purpose under s 162(d) by reducing the risk that regulated providers will be able to earn excessive profits.

²⁵⁵ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraph 52.

²⁵⁶ Spark "Fibre regulation emerging views: technical paper" (16 July 2019), Attachment C page 18 -19.

- 3.559 The regulated providers will need to use new measures and statistics or check existing measures and statistics due to differences in the scope of the FFLAS that are covered. The financial loss asset only relates to the UFB initiative, while the initial RAB includes regulated FFLAS that were not part of the UFB initiative.

PQ forecasts

- 3.560 For future PQ proposals, it is likely that the expenditure proposed will contain uncertainty around both total demand and the split between demand for regulated FFLAS and for services that are not regulated FFLAS. Both dimensions are likely to change over the period of the forecasts to reflect forecast changes in uptake of the varying services.
- 3.561 The effect of the combination of having two unknowns in the forecasts is that there will be significant uncertainty around cost allocation in the forecasts, including in predicting changes in the level of sharing of costs over time across different services. For example, when dealing with forecasts for new products and/or the transition of end-users between different technologies, forecasts cannot always be readily extrapolated from current trends. In addition, the regulated providers would have incentives to inflate forecasts of the uptake, usage, or other benefits of proposed expenditure for regulated FFLAS and to down-play the benefits to services that are not regulated FFLAS.
- 3.562 Over-estimating (relative to actual) the metrics used to allocate the forecast expenditure or the benefits to regulated FFLAS could see 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, which is not consistent with the purposes set out in s 162, and specifically s 162(d).
- 3.563 Systematically over-forecasting the expenditure that is to be allocated to regulated 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 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 costs, which 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.
- 3.564 Forecasting that underestimates the share of costs attributable to regulated FFLAS could see under-recovery of costs which is not consistent with the principle of FCM and could result in under-investment in services, to the detriment of end-users.

- 3.565 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).
- 3.566 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 on the level of economic growth for all forecasts should reduce some variance in results and lead to a more stable estimate of the relative level of sharing. By comparison, having different assumptions around the level of economic growth, is likely to see the actual relative level of sharing change under any level of economic growth.
- 3.567 To help address the issues outlined above, forecasts of expenditure sharing should be based on robust data and assumptions that are subject to review as part of the PQ review process. At a high-level, we consider that this should be part of the overall PQ framework for ensuring that forecasts of demand, quality requirements, and expenditure are robust.
- 3.568 For the reasons explained earlier in this chapter, we continue to recommend that ABAA is applied to both the RAB and future additions to the RAB, which include capital expenditure that will be approved under PQ regulation.
- 3.569 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 when assets are added to the RAB should help promote consistency between the allocated value of capital approved and the eventual allocated value of additions to the 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.
- 3.570 For the reasons outlined above, our draft decision requires that the cost allocation practices used for PQ will be applied when the relevant expenditure is reported under ID, unless there is a justifiable reason to use alternative allocators.
- 3.571 This consistency would also promote transparency as it would help interested persons compare PQ forecasts to actual data on a like-for-like basis, which would assist in improving later forecasting.

Review of cost sharing assumptions and documentation

- 3.572 Our draft decision is that the cost allocation practices that will be reviewed as part of the PQ review process will later be applied to ID by those regulated providers subject to PQ regulation.

3.573 We anticipate that conducting these reviews as part of the PQ review process, rather than via a separate process under ID (such as 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.

3.574 The requirement for a review tool is supported by Axiom, who submit that:

“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”.²⁵⁷

3.575 We consider that our draft 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.^{258 259}

3.576 The level of cost sharing for the other regulated providers (ie, those subject only to ID regulation) 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.

3.577 The approach to forecasting in general, for documentation on cost allocation for the PQ forecasts and the review of PQ forecasts will be addressed in the future PQ determinations. As such, we have not expanded on these aspects of forecasting in this document.

Court or other statutorily imposed penalties excluded from operating costs

Draft decision

3.578 In implementing the cost allocation IM, we will exclude certain expenses from operating expenditure. Court or other statutorily imposed penalties are one such category that will be explicitly excluded from operating costs that a regulated provider incurs in providing the regulated FFLAS.

²⁵⁷ Axiom Economics "Fibre regulation emerging views" (July 2019), page 13.

²⁵⁸ 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.

²⁵⁹ 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.

Rationale for draft decision

- 3.579 One of the issues raised in submissions was that pecuniary penalties and fines should be explicitly excluded from operating costs for regulated FFLAS. For example, one submitter highlighted our proposal to take this approach for amendments to Part 4 Commerce Act IMs and submitted that a consistent approach should be taken for fibre IMs under Part 6 of the Act.²⁶⁰
- 3.580 We agree we should take a consistent approach to the regulation of FFLAS under Part 6 to that taken for Transpower under Part 4.²⁶¹ 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.
- 3.581 We therefore propose to explicitly exclude from the definition of “operating costs”, “payment of any pecuniary penalties” and the term “pecuniary penalties”, defined as follows:²⁶²

finer or penalties imposed:

- (c) by a court; or
 - (d) by any other body with a statutory power to impose such fines or penalties.
- 3.582 This will provide certainty for regulated providers regarding the treatment of pecuniary penalties, as such, will promote the IM purpose in section 174 of the Act. If the costs of pecuniary penalties were permitted to be included in regulated providers’ operating costs, these costs would be passed on to end-users. We do not consider that there is a sound policy argument for these costs to be shared with end-users. If this were the case, it would insulate regulated providers from suffering the consequences of any breaches to regulatory requirements (eg, quality standards set under PQ regulation) and thus, would not be in the long-term benefit of end-users.

²⁶⁰ 2degrees "Submission on Commerce Commission Fibre Regulation Emerging Views Paper" (16 July 2019), page 9.

²⁶¹ The Commission has recently published the amended Transpower IM Determination and Reasons paper 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 is currently considering taking the same approach for EDBs, with the IMs and reasons paper due to be published in November 2019.

²⁶² We propose adopting the same definition as that used in the Transpower IM Determination for the Part 6 IM Determination.

Cost of capital IM

Introduction to cost of capital IM

3.583 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.

Key draft decisions for cost of capital IM

Cost of equity	
1.	Our draft decision is to calculate cost of equity using the simplified Brennan-Lally capital asset pricing model (SBL-CAPM).
2.	Our draft decision is to take a service-wide approach when determining the cost of capital for regulated FFLAS, including a service-wide asset beta.
3.	We have estimated an asset beta of 0.49 for our draft decision, based on historic estimates of average asset betas and our six-step approach to estimating the asset (and equity) beta value.
4.	We have estimated a value for the tax adjusted market risk premium (TAMRP) of 7.5% for our draft decision.

Cost of debt	
5.	Our draft decision is to set the risk-free rate at each determination of the WACC using a prevailing rate consistent with the term of the regulatory period; this includes: <ul style="list-style-type: none">a. using the return on NZ government bonds as a proxyb. using prevailing ratesc. using a three-month determination windowd. matching the term of the risk-free rate to the regulatory period (resulting in a three-year risk-free rate initially, followed by a three- to five-year risk-free rate, dependent on the length of future regulatory periods).
6.	Our draft decision is that an appropriate credit rating is BBB+.
7.	Our draft decision is that the debt premium is estimated at each determination of the WACC and set using an historical average approach and a TCSD; this includes: <ul style="list-style-type: none">a. using a historical average approach (not prevailing rate) to estimate the debt premium;b. using a five-year debt premium with a TCSD;c. using a hierarchy of bonds; andd. having regard to the Nelson-Siegel-Svensson (NSS) curve.
8.	Our draft decision is a 20-basis point allowance for debt issuance costs for five-year debt.

Leverage	
9.	Our draft decision is to set the leverage at 31% based on the average of the comparator set we use to estimate asset beta.

Other key draft decisions affecting WACC

WACC uplift and asymmetric risk

10. Consideration of a WACC uplift is important because there could be reasons why a return that is equal to our best estimate of the WACC (ie, our 'mid-point estimate') does not result in a regulated provider expecting to earn a normal return.
11. Our draft decision is to use the mid-point estimate of the WACC for the purposes of PQ of regulated FFLAS.
12. Our draft decision is to publish the mid-point of the WACC and the standard error for the purposes of ID regulation of regulated FFLAS.

WACC applied to ID

13. We consider that an ID WACC is required so that we are able to undertake profitability assessments in the future for regulated providers.
14. Our draft decision is that regulatory WACC determinations for ID regulation are determined annually to allow comparison to disclosure profitability information.
15. Our draft decision is to publish the regulatory WACC within one month of the start of the disclosure year.
16. Our draft decision is to publish the mid-point and standard error of the regulatory WACC for the purposes of ID Regulation.

Structure of the chapter

3.584 This chapter is divided into sections that explain each of the parameters needed to estimate the cost of capital.

3.585 We have also published two expert reports alongside this paper:

- (a) Cost of capital for regulated fibre telecommunication services in New Zealand: Asset beta, leverage, and credit rating – Response to submissions by Cambridge Economic Policy Associates (**CEPA**).²⁶³
- (b) Estimation of the TAMRP by Dr Martin Lally and Capital Financial Consultants Ltd.²⁶⁴

3.586 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.

²⁶³ CEPA, Cost of capital for regulated fibre telecommunication services in New Zealand: Asset beta, leverage, and credit rating – Response to submissions, October 2019.

²⁶⁴ Dr Martin Lally, Capital Financial Consultants Ltd, Estimation of the TAMRP, September 2019,

- 3.587 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.
- 3.587.1 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.
 - 3.587.2 Our draft 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.
 - 3.587.3 We have selected a draft 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.
 - 3.587.4 This chapter covers:
 - 3.587.4.1 what the WACC and the cost of capital input methodology are;
 - 3.587.4.2 the requirements of the Act;
 - 3.587.4.3 the framework for making WACC decisions;
 - 3.587.4.4 a summary of our proposed approach to estimating the cost of debt;
 - 3.587.4.5 a summary of our proposed approach to estimating the cost of equity; and
 - 3.587.4.6 other WACC issues, including, leverage, taxation, WACC range, adjusting for Crown financing, an uplift to reflect asymmetric consequences of under-investment, the appropriate WACC percentile for ID regulation and PQ, reasonableness checks, application of regulatory WACC.

The weighted average cost of capital

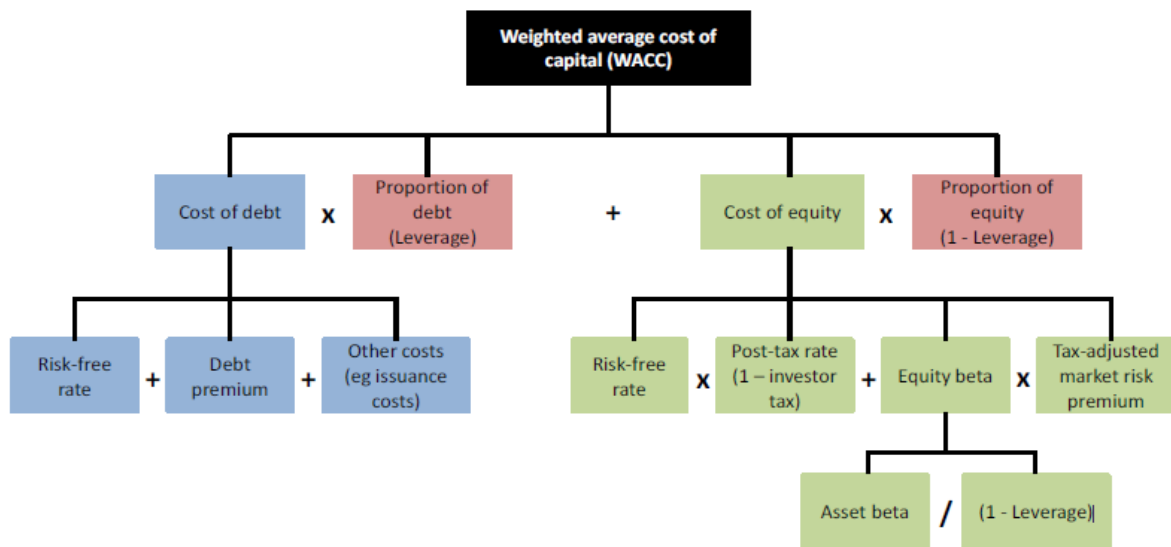
- 3.588 The WACC reflects the cost of debt and the cost of equity, given the mix of debt and equity. Our draft decision is to use a post-tax WACC and a vanilla WACC. The former includes the after-tax cost of debt; the latter includes the cost of debt before tax, as shown in the following equations.

Post-tax WACC = cost of debt (after tax) x leverage + cost of equity x (1 - leverage)

Vanilla WACC = cost of debt x leverage + cost of equity x (1 – leverage)

- 3.589 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 draft IM’s approach to regulatory tax for PQ. Accordingly, our draft decision is to use vanilla WACC estimates for PQ, and both vanilla WACCs and post-tax WACCs for the purposes of ID regulation.
- 3.590 A number of parameters must be calculated to derive our estimates. These are as set out in **Figure 3.2:** below.

Figure 3.2: WACC and its parameters



- 3.591 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.
- 3.592 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

- 3.593 Our estimate of the cost of capital IM comprises two parts.
- 3.593.1 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 regulated FFLAS.

3.593.2 The second component is the term credit spread differential (**TCSD**) (explained below), which is treated as a separate component because we propose that it will apply to qualifying firms only.

3.594 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 draft 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 separately discussed in the asset valuation section.

How we have decided to estimate the WACC component of the cost of capital IM

3.595 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.

3.596 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 regulation²⁶⁵ and PQ,²⁶⁶ we have to exercise a degree of judgement.

3.597 Our draft 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 draft IM specify values for certain parameters, such as tax rates, 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 draft cost of capital IM estimates these parameters below.

3.598 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 draft decision is that no such adjustment is necessary as explained below.

3.599 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.

²⁶⁵ Section 186.

²⁶⁶ Section 192.

Cost of debt

- 3.600 Debt is an important source of capital for many businesses. Our draft 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 propose allowing 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.
- 3.601 Our draft decision is to include the following parameters in the cost of debt:
- 3.601.1 the risk-free rate;
 - 3.601.2 the debt premium;
 - 3.601.3 TCSD; and
 - 3.601.4 debt issuance costs.²⁶⁷
- 3.602 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.
- 3.603 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.
- 3.604 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 ongoing business. We propose that these costs should be included in the cost of capital for regulated fibre providers.
- 3.605 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.

²⁶⁷ We have proposed including an allowance for swap costs as part of debt issuance costs.

- 3.606 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.
- 3.607 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

- 3.608 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.
- 3.609 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.
- 3.610 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.
- 3.611 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.

- 3.612 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.
- 3.613 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).
- 3.614 Under the SBL-CAPM, the MRP is adjusted for tax faced by the investor on equity returns; therefore, the MRP becomes the tax adjusted MRP (TAMRP).
- 3.615 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).
- 3.616 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

- 3.617 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, we propose that the cost of capital IM does not provide for the tax circumstances of individual investors (accumulated tax losses, inability to use imputation credits). We propose mirroring the statutory tax rate for corporate tax and the maximum prescribed investor rate under the Portfolio Investment Entities (PIE) regime for investor tax.
- 3.618 Leverage refers to the mix of debt and equity capital that is used to fund an investment. We propose using 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.

How we have decided to estimate the term spread credit differential component of the cost of capital IM.

- 3.619 Our draft 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.
- 3.620 Although the TCSD is conceptually a component of the cost of capital, our draft 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.
- 3.621 Our draft decision is that the TCSD is calculated by way of a formula that combines:
- 3.621.1 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');²⁶⁸and
 - 3.621.2 a negative adjustment to take account of the lower per annum debt issuance costs that are associated with longer-term debt.²⁶⁹

Requirements of the Act

- 3.622 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;
 - (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;

²⁶⁸ This debt is called 'qualifying' debt.

²⁶⁹ We assume that all debt issuance costs are fixed, irrespective of the original term of the debt.

Decision-making framework

3.623 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

3.624 In reaching our draft 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 firms²⁷⁰ in workably competitive markets, i.e. 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).

3.625 Because the actual cost of capital of firms in workably competitive markets is not observable, we must make an estimate. Our draft 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.²⁷¹

3.626 We consider that the most relevant outcomes of the s 162 purpose for the cost of capital IM are:

3.626.1 section 162(a) – that regulated providers have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and

3.626.2 section 162(d) – that regulated providers are limited in their ability to extract excessive profits.

3.627 The other outcomes specified in the s 162 purpose are:

3.627.1 section 162(b) – that regulated providers have incentives to improve efficiency and supply FFLAS of a quality that reflects end-user demands; and

3.627.2 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.

²⁷⁰ 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.

²⁷¹ See **Chapter 2** for more details.

- 3.628 We consider that our draft cost of capital IM decisions do not directly promote the outcomes in s 162(b) and s 162(c). However, we consider that our draft 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 draft decisions, we have not specifically discussed them as part of our reasoning for why our draft decisions best give, or are likely to best give, effect to the purpose of Part 6 in s 162.
- 3.629 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.
- 3.630 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.
- 3.631 In reaching our draft decisions on the cost of capital, we aim to strike an appropriate balance between s 162(a) and s 162(d).²⁷² Due to the estimation difficulties described at paragraph 3.595, 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.
- 3.632 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 provider's ability to extract excessive profits over the medium or long-term.²⁷³ This would be inconsistent with s 162(d) of the Act.

²⁷² 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.

²⁷³ We note that, in the short-term, regulated providers may achieve above-normal profits if they outperform the objectives set by the regulator.

3.633 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 it 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, i.e. 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)

3.634 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.

3.635 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 draft 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 draft 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.

3.636 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 3.1084-3.1089.

3.637 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:

3.637.1 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

3.637.2 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.

3.638 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 draft 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 draft decisions on the cost of capital

3.639 As the promotion of workable competition is a relevant consideration in reaching our draft decisions for the cost of capital, our draft 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).

3.640 As discussed in our **Chapter 2**, section 166(2) does not establish a hierarchy between the promotion of the two outcomes. In reaching our draft decisions on the cost of capital, we consider that we have struck an appropriate balance between:

3.640.1 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

3.640.2 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.

3.641 We consider that all our draft 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.

3.642 We have proposed each individual draft decision in this chapter because we consider that each draft decision contributes towards our aim of determining an estimate of a cost of capital that is reasonable and commercially realistic given investors' risk. Therefore, a cost of capital that best gives, or is likely to best give, effect to the s 166(2) purposes.

3.643 All our individual draft 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 draft decision best gives, or is likely to best give, effect to the s 166(2) purposes. Rather, each draft decision proposed, and our rationale for each draft 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

Purpose of this section

3.644 The purpose of this section is to explain our draft decisions regarding the cost of debt, including each of the parameters that make up the cost of debt.

3.645 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 draft cost of capital IM also includes an allowance for the costs of issuing debt. Therefore, the cost of debt is as follows:

Cost of debt = risk-free rate + debt premium + debt issuance costs

Structure of this section

3.646 In this section we discuss our proposals for the following components of the cost of debt:

- 3.646.1 risk-free rate;
- 3.646.2 debt premium;
- 3.646.3 compensation for debt issuance costs;
- 3.646.4 TCSD; and
- 3.646.5 credit rating.

Risk-free rate

Summary of draft decision

3.647 In relation to the risk-free rate, our draft decision is that the IM specifies:

- 3.647.1 the process and methodology for estimating the risk-free rate;
- 3.647.2 using the observed market bid yield to maturity of benchmark NZ government NZ dollar denominated nominal bonds to estimate the risk-free rate;
- 3.647.3 using a prevailing approach to estimate the risk-free rate for the PQ path and ID;
- 3.647.4 estimating the risk-free rate by averaging the observed market yields on the government bonds over three calendar months prior to when the cost of capital is being estimated (three-month determination window);

- 3.647.5 that the term of the risk-free rate will match the length of the regulatory period for the PQ path and ID;
- 3.647.6 that the risk-free rate will be updated for each cost of capital estimation, including annually for ID.

General explanation of topic

- 3.648 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.
- 3.649 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.
- 3.650 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.

Draft decision - use the return on New Zealand Government NZ dollar denominated nominal bonds as the proxy for the risk-free rate

- 3.651 Our draft 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.

Rationale for using the return on New Zealand Government NZ dollar denominated nominal bonds as the proxy for the risk-free rate

- 3.652 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.
- 3.653 We consider that benchmark New Zealand Government bonds best fulfil these conditions and are, therefore, the best proxy for the risk-free rate.
- 3.654 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.
- 3.655 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.

- 3.656 We also note that no submitters on our emerging views paper raised concerns on our view that the most suitable proxy for the risk-free rate in New Zealand continues to be the New Zealand Government bond rate.

Draft decision - use prevailing rates in the risk-free rate estimation

- 3.657 Our draft 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.

Rationale for using prevailing rates in the risk-free rate estimation

- 3.658 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).
- 3.659 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.
- 3.660 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.
- 3.661 While we recognise that there is likely to be more volatility under a prevailing approach from one regulatory period to the next, we consider that the expectation of returns provides a better investment signal. We therefore consider that using prevailing rates over historical rates provides more appropriate investment incentives.
- 3.662 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.²⁷⁴

²⁷⁴ 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.

- 3.663 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 providers'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).²⁷⁵
- 3.664 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 there will be minimal violations of the NPV=0 principle in regard to the risk-free rate under a prevailing regime. 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.
- 3.665 We note that firms may not be able to 'fully' hedge their exposure to the risk-free rate especially for investments during the 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.
- 3.666 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. 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.
- 3.667 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 providers. We consider that distortions are a possible concern for a one-month determination window.
- 3.668 We note that submitters on our emerging views paper generally agreed that the use of prevailing rates for the risk-free rate estimate is appropriate.
- 3.669 We consider that the use of prevailing rates best gives effect to the s 166 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.²⁷⁶

²⁷⁵ Firms will not be able to completely hedge their exposure because the swap rates and the risk-free rate are not exactly the same.

²⁷⁶ 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.

3.670 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.²⁷⁷

3.671 However, we do not consider this benefit would be substantial in assessing profitability.

3.671.1 We agree with Dr Lally's view that any assessment of ex-post profitability should take place over a number of years.²⁷⁸ 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.

3.672 We have therefore proposed 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.²⁷⁹

We use the observed market yield to maturity rather than spot rates (of benchmark NZ government NZ\$ denominated nominal bonds)

3.673 Our draft decision is to use the observed market yield to maturity, rather than spot rates, of benchmark NZ government NZ\$ denominated nominal bonds) when estimating the cost of capital.

3.674 We typically use yields to maturity²⁸⁰ on benchmark New Zealand Government bonds as the proxy for the risk-free rate in the CAPM.²⁸¹ However, the theoretically correct approach would be to use spot rates (sometimes referred to as zero coupon rates) instead, ie, the rates that would apply to a bond that delivers a single payoff at maturity.

²⁷⁷ 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: 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 13-14.

²⁷⁸ 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 13-14.

²⁷⁹ 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 10-11.

²⁸⁰ A bond's yield to maturity, also known as its internal rate of return, is the discount rate that sets the price of the bond equal to the discounted value of the promised future payments on the bond.

²⁸¹ Benchmark New Zealand government bonds usually pay coupons every six months.

- 3.675 If yields to maturity on coupon paying bonds are used in place of spot 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.²⁸²
- 3.676 We acknowledge that, in theory, we should use spot rates to estimate the risk-free rate, rather than yields to maturity. However, yields to maturity are more readily obtainable than spot rates (most practitioners rely on financial institutions to estimate the spot rates), and using a single interest rate in the estimation process simplifies the necessary calculations.
- 3.677 For this reason, we propose using yields to maturity 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.²⁸³

We use bid rates when estimating yields on government bonds

- 3.678 Our draft decision is to use bid rates rather than mid-rates when estimating yields to maturity on government and corporate bonds.
- 3.679 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.²⁸⁴

We use a three-month determination window

- 3.680 Our draft 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.
- 3.681 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.
- 3.682 We note that no submitters raised concerns on our emerging views paper to use a three-month determination window in the risk-free rate estimation.

²⁸² NPV refers to the present value of future cash flow less the initial investment.

²⁸³ See Commerce Commission “Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper” (December 2010), paragraphs H4.20.

²⁸⁴ See paragraph 3.811.

We match the term of the risk-free rate to the regulatory period for PQ regulation

- 3.683 For PQ, our draft decision is to match the term of the risk-free rate to the regulatory period, resulting in a three-year risk-free rate for the first regulatory period,²⁸⁵ followed by a three to five year risk-free rate, dependent on the length of future regulatory periods.²⁸⁶
- 3.684 In the context of PQ, we propose that the IM specifies a three-year, followed by a three to five-year term when estimating the risk-free rate.
- 3.685 Two LFCs (Enable and UltraFast), and the investor Black Crane Capital, have raised concerns with our 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 that:
- 3.685.1 the term should match the useful life of the underlying assets and firms' actual debt structuring behaviour;²⁸⁷
 - 3.685.2 the term of the risk-free rate should reflect the investment horizon that investors of infrastructure typically have, favouring a ten-year term.²⁸⁸
- 3.686 According to these submitters, therefore, the term of the risk-free rate which matches the regulatory period is too short and would under compensate regulated providers.
- 3.687 We consider that these submissions, however, overlook the following considerations:
- 3.687.1 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); and²⁸⁹
 - 3.687.2 regulated providers 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; and

²⁸⁵ Section 207(1).

²⁸⁶ Section 207(2).

²⁸⁷ Enable and Ultrafast submission, section 7.

²⁸⁸ "We feel that the term of the risk-free rate should reflect the investment horizon that debt and equity investors in infrastructure typically have. This somewhat varies depending on circumstances but based on our experience we feel that somewhere around the 10 year mark may be appropriate." Black Crane Capital submission section 4, page 4.

²⁸⁹ Section 162.

- 3.687.3 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.

Matching the term of the risk-free rate to the regulatory period to ensure a normal rate of return

- 3.688 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. 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.
- 3.689 In the 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 will earn profits that are greater (or lower) than a normal rate of return.²⁹⁰
- 3.690 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.
- 3.691 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.

The power to reset prices

- 3.692 The interest rate on government stock generally increases with term. 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.

²⁹⁰ Lally, M., Regulation and the choice of the risk-free rate, Accounting Research Journal, 2004, Vol. 17 (1), pages 18-23.

3.693 Regulated providers can reset their prices at the end of each regulatory period to reflect, among other things, changes in the risk-free rate if this has altered the cost of capital.²⁹¹ Through the regular resetting of prices 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' prices should not reflect a premium for the uncertainty of risk-free rates beyond the length of the regulatory period.

The availability of interest rate swaps

3.694 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.

3.695 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. Indeed, it may result in a much shorter interest rate re-pricing period.

3.696 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.

²⁹¹ Lally, M., The weighted average cost of capital for electricity lines businesses, paper prepared for the Commerce Commission, September 2005, pages 29-30.

- 3.697 Firms use interest rate swaps to hedge the risk-free rate component of their debt portfolios.²⁹² 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.
- 3.698 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.²⁹³
- 3.699 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

- 3.700 The period of focus for regulatory purposes is the regulatory period, not the life of the asset or business; for regulated FFLAS this is a three-year regulatory period,²⁹⁴ followed by a three to five-year regulatory period.²⁹⁵
- 3.701 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. 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.
- 3.702 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.

²⁹² Franks, J., M. Lally and S. Myers, Recommendations to the New Zealand Commerce Commission on an Appropriate Cost of Capital Methodology, Report prepared for the Commerce Commission, 18 December 2008, paragraph 48.

²⁹³ See Commerce Commission "Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper" (December 2010), paragraph H4.50.

²⁹⁴ Section 207(1).

²⁹⁵ Section 207(2).

- 3.703 When regulated providers reset their prices 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 risk-free rate with a term longer than the regulatory period would compensate regulated providers for an uncertainty they do not bear.
- 3.704 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.

We match the term of the risk-free rate to the regulatory period for ID regulation

- 3.705 For ID regulation, consistent with PQ, our draft decision is to match the term of the risk-free rate to the regulatory period applying to regulated providers subject to PQ, resulting in a three-year risk-free rate initially, followed by a three to five-year risk-free rate, dependent on the length of future regulatory periods for regulated providers subject to PQ.
- 3.706 In the context of ID regulation, we propose that the IM specifies a three-year, followed by a three to five-year term when estimating the risk-free rate.
- 3.707 We consider that an ID WACC will be 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.²⁹⁶
- 3.708 LFCs Enable and Ultrafast submitted that matching WACC to the regulatory period is less appropriate for LFCs given that they are not subject to PQ.²⁹⁷
- 3.709 While we recognise there is some merit to the submissions from these LFCs, we also note our intention to allow LFCs to publish whatever WACC they consider is appropriate alongside their disclosures.
- 3.710 We have considered three options for the term of the risk-free rate in ID WACC:
- 3.710.1 Option 1: use the same risk-free rate settings in PQ WACC and ID WACC;
 - 3.710.2 Option 2: leave open the option to vary the risk-free rate term in ID WACC; and
 - 3.710.3 Option 3: adopt the suggestion of using a ten-year risk-free rate.

²⁹⁶ 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'.

²⁹⁷ Enable and Ultrafast submission, section 7.

- 3.711 Our draft decision is to adopt option 1 which we consider is appropriate for assessments of regulated providers' performance.²⁹⁸ If LFCs consider that a different risk-free rate term is appropriate, we propose that they could 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 some merit from 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.
- 3.712 We recognise that option 2 would have the advantage of providing an option to vary the risk-free rate term in ID WACC in the future. However, this would add complexity to WACC determinations.
- 3.713 Option 3 is based on the logic of matching the term of the risk-free rate to the life of the investment. While the life of fibre investment exceeds ten years, a ten-year risk-free rate would be the practical approach if that was the objective. We have previously noted, at paragraphs 3.694-3.699, that the use of swaps means businesses are not exposed to the longer term interest rate risk. It also makes the ID WACC determinations more divorced from those that would apply under PQ.

We will update the estimate of the risk-free rate for each cost of capital estimation

- 3.714 The risk-free rate will be updated for each cost of capital estimation, including annually for ID.

Debt premium

Summary of draft decision

- 3.715 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.

- 3.716 The debt premium can be theoretically decomposed as:²⁹⁹

$$\begin{aligned} \text{Debt premium} &= \text{liquidity premium} + \text{default premium} + \text{systematic risk premium} \\ &= \text{liquidity premium} + \text{default premium} + \beta_d \cdot \text{MRP} \end{aligned}$$

²⁹⁸ 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.

²⁹⁹ Where β_d is the debt beta.

- 3.717 Our draft 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.
- 3.718 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.
- 3.719 Our draft decisions for the methodology for calculating the debt premium are:
- 3.719.1 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 by a FFLAS regulated provider not 100% owned by the government nor a local authority, with a Standard and Poors (**S&P**) long-term credit rating of BBB+;
 - 3.719.2 to address the small number of bonds that are publicly traded in New Zealand, this may involve, as required, progressively expanding the range of publicly traded bonds considered to include:
 - 3.719.2.1 telecommunication companies;
 - 3.719.2.2 other entities with a S&P long-term credit rating of BBB+;
 - 3.719.2.3 those with a S&P long-term credit rating other than specified; and
 - 3.719.2.4 those issued by an entity majority owned by the government or a local authority;
 - 3.719.3 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 of the type first described;
 - 3.719.4 we will estimate the debt premium with the simple historical average approach using five years of historical data;
 - 3.719.5 the five-year average will be obtained;
 - 3.719.5.1 for future years from corporate bond rates over a 12-month determination window;

3.719.5.2 for historic estimates from debt premiums estimated for other sectors.³⁰⁰

3.719.6 the term of the debt premium will be five-years with a TCSD;

3.719.7 We will also have regard to the NSS curve.

The debt premium

3.720 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

3.721 We need to estimate the debt premium when we estimate the cost of capital. The series of practical steps this involves comprise our draft decision on how best to estimate the debt premium:

3.721.1 We will use a simple benchmark of NZ issued corporate bonds.

3.721.2 We will use a five year average of annual debt premium estimates.

3.721.3 We will use data on bonds of a five year term to maturity.

3.721.4 We will estimate a TCSD for longer dated bonds.

3.721.5 We will use data on bonds issued by corporates with a BBB+ credit rating.

3.722 The reasons for each of these decisions is laid out below.

We propose using a simple benchmark approach to the debt premium

3.723 Our draft decision is to use a simple benchmark approach to estimate the debt premium for regulated FFLAS. This simple approach uses a benchmark of credit-rated and publicly traded corporate bonds denominated in New Zealand dollars.

3.724 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 bonds overseas. Each option has its own market volume, tenor and credit worthiness characteristics.

³⁰⁰ For suppliers of electricity lines services, gas pipeline services, and specified airport services we regulate under Part 4.

- 3.725 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 acknowledge that firms may raise debt capital through a number of channels in addition to issuing bonds in New Zealand.
- 3.726 Our simple approach to estimating the debt premium involves three steps:
- 3.726.1 identify credit-rated publicly traded vanilla³⁰¹ corporate bonds denominated in New Zealand dollars, issued by regulated providers in New Zealand and, as a cross check, issued by other infrastructure businesses in New Zealand, which are not regulated FFLAS.
 - 3.726.1.1 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.
 - 3.726.2 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 providers of the regulated FFLAS.
- 3.727 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.
- 3.728 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 specified airport services we regulate under Part 4. As such it is widely understood and of proven practicality.
- 3.729 The main disadvantage of the simple approach to estimating debt premiums is that it does not recognise any other means by which firms can raise debt except publicly traded corporate bonds. However, data for these other means is not publicly available.
- 3.730 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.

³⁰¹ Vanilla bonds are defined as senior unsecured nominal debt obligations denominated in NZ\$ without callable, puttable, conversion, profit participation, credit enhanced or collateral features.

3.731 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.

3.732 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:

3.732.1 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).

3.732.2 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.

3.732.3 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.

3.733 On balance, our draft decision is to use the simple approach to estimating debt premiums. This is for two main reasons:

3.733.1 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 propose to publish WACC determinations on a regular basis.

- 3.733.2 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.
- 3.734 Our draft 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:³⁰²
- 3.734.1 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.
- 3.734.2 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.
- 3.734.3 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.
- 3.735 Overall, the debt premium is a notional benchmark of the cost of borrowing above the risk-free rate for regulated FFLAS. 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.

Why we propose adopting a five-year average of debt premiums

- 3.736 Our draft decision is 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.
- 3.737 When calculating the debt premium, there are two broad approaches:
- 3.737.1 A historical average; or
- 3.737.2 The prevailing rate.
- 3.738 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 issues involved in choosing between the prevailing rate and the historic average.

³⁰² 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.

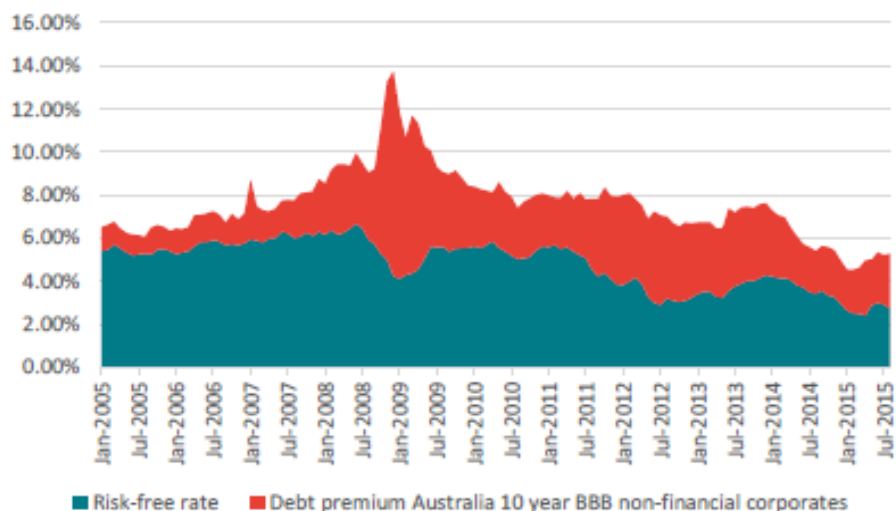
- 3.739 There is a potential mismatch between the debt premium incurred by firms who issue debt on a regular rolling basis, and the corresponding compensation allowed for in our estimate of WACC. Firms can be exposed to any difference between the debt premium paid at the time they issue debt and the debt premium determined during the averaging window prior to the setting of the WACC.³⁰³
- 3.740 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 perfectly matched by the regulated provider.
- 3.741 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.
- 3.742 The debt premium is relatively stable, which reduces the chance that any mismatches will have a material impact on regulated provider revenues.
- 3.743 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.
- 3.744 Dr Lally has 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.³⁰⁴
- 3.745 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 to 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.
- 3.746 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 3.3** below.³⁰⁵

³⁰³ 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.

³⁰⁴ 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.

³⁰⁵ Frontier Economics (report prepared for Transpower) "Response to cost of capital issues raised in draft input methodologies" (4 August 2016), Figure 2.

Figure 3.3: Debt premium on BBB non-financial corporate bonds – Australia



Source: Data from Reserve Bank of Australia; Frontier analysis

3.747 A period of high debt premiums could have a negative impact on both:

3.747.1 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;³⁰⁶ and

3.747.2 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.

3.748 Given the above, we consider that, on balance it is more appropriate to provide a historical average of the debt premium, rather than the prevailing approach.

3.749 Our draft decision is therefore to apply a five-year historical average 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 with the latest 12-month data (and dropping the oldest 12-month data) every year.

³⁰⁶ 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.

Why we use a five-year term plus TCSD for estimating the debt premium

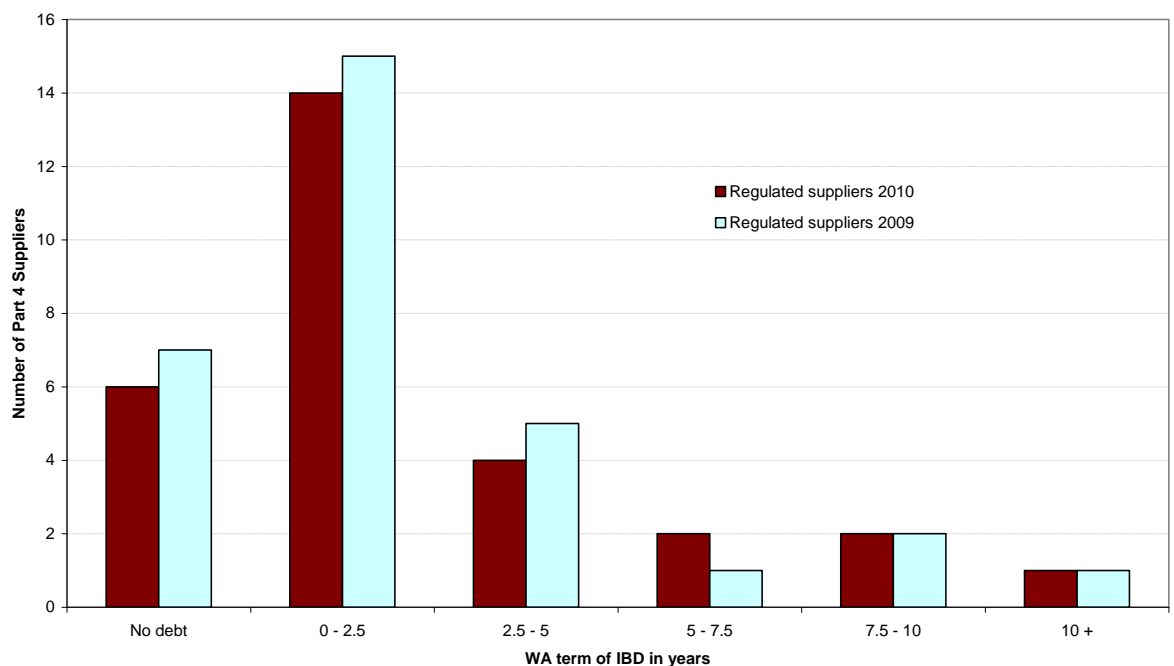
- 3.750 Our draft decision is to use bonds of a five-year term for estimating the debt premium for regulated FFLAS, which we will then apply a TCSD to, if regulated providers issued debt of a longer term.
- 3.751 In our emerging views paper, we set this out as our preferred approach and noted that while it is relatively more complicated than setting a single term for estimation, it limits over-compensation and allows for straight forward implementation.³⁰⁷
- 3.752 The debt premium is expected to increase with the term of the debt, hence 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.
- 3.753 In principle the term of the estimated debt premium should match the efficient term of bonds financing regulated FFLAS 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 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 a relevant difference for estimating the cost of a notional efficient cost of debt.
- 3.754 When arriving at our draft view of what the term should be, we noted we had considered this issue, and relevant evidence before us.
- 3.754.1 We noted that we had previously surveyed suppliers of services regulated by us in other sectors.³⁰⁸ 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.

³⁰⁷ Commerce Commission “Fibre regulation emerging views: Technical paper” (May 2019), paragraphs 497 to 503

³⁰⁸ Suppliers of electricity lines services, gas pipeline services, and specified airport services we regulate under Part 4.

3.754.2 In 2009 and 2010 we surveyed suppliers of services regulated under Part 4.³⁰⁹ 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 only one was greater than ten years.³¹⁰ Their responses are shown in **Figure 3.4**. 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).³¹¹

Figure 3.4: Regulated suppliers' debt portfolio: weighted average original term to maturity of interest-bearing debt³¹²



³⁰⁹ Suppliers of electricity lines services, gas pipeline services, and specified airport services we regulate under Part 4.

³¹⁰ 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.

³¹¹ 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.

³¹² Suppliers of electricity lines services, gas pipeline services, and specified airport services we regulate under Part 4.

- 3.754.3 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.
- 3.754.4 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.³¹³ We also noted several recent domestic bond issues at that time which supported a seven-year term.
- 3.754.5 Evidence continues to suggest bonds of less than ten years are issued to finance long-term infrastructure. For example, Christchurch City Holdings Limited issued fixed rate six-year bonds to the debt capital markets in November 2018.³¹⁴ WEL Networks Limited (**WEL Networks**) 2 August 2018 issue of bonds on the NZX had a term of five years.³¹⁵ Longer-term bonds are also issued, for example, Chorus issued ten year bonds in November 2018.³¹⁶
- 3.755 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.
- 3.756 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 these 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.

³¹³ Commerce Commission "Cost of capital for the UCLL and UBA pricing reviews: Final Decision" (December 2015), paragraphs 77 to 89.

³¹⁴ CCHL Annual Report page 50.

³¹⁵ WEL Group Annual Report 2019, page 64.

³¹⁶ NZX Quotation Notice – Chorus Limited ("CNU020") Bonds, 23 November 2018.

- 3.757 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, we propose 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.
- 3.758 In response to our emerging views paper, some submitters considered that a ten year term was more appropriate.³¹⁷ A Castalia Limited (**Castalia**) report stated that “*We consider the financing term for LFCs must be matched to the economic life of the underlying assets*”.³¹⁸ Here we note the proposed use of a five-year term and TCSD would compensate for the term of debt actually incurred by the regulated provider. This may or may not match the life of the economic assets, but we see little merit in providing for a debt premium term which is higher (and a higher associated premium) than the debt premium term incurred by regulated providers of long-term infrastructure. On the evidence we have before us this is, on average, shorter than ten years and certainly shorter than the economic life of the underlying assets.
- 3.759 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:
- 3.759.1 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.
- 3.759.2 In general, we do not wish to discourage firms from issuing longer-term debt to reduce refinancing risk.
- 3.760 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 3.752, 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.

³¹⁷ For example, see Enable Fibre & Ultrafast Fibre “Submission on NZCC fibre regulation emerging views: technical paper” (July 2019), paragraphs 7.10 to 7.12

³¹⁸ Castalia “Rate of return for Information Disclosure Profitability Monitoring of Local Fibre Companies” page 7

3.761 Consequently, and balancing these issues, we consider that using a five-year term and allowing for TCSD for the purpose of ID and PQ regulation is likely to best balance 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. Hence:

3.761.1 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.

3.761.2 This allowance (called the TCSD) will only apply where a regulated provider's debt portfolio has a weighted average tenor exceeding five years. For 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.

3.761.3 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 we propose that this allowance will apply in practice are explained later in this chapter at paragraphs 3.829-3.838.

3.761.4 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 ensures regulated providers are not over-compensated for risks and costs they do not incur.

3.761.5 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.

3.761.6 For the regulated providers that have, on average, issued debt with a term to maturity that is longer than five years (thereby incurring a greater debt premium), we propose ensuring that they will not be under-compensated as they will qualify for the TCSD allowance.

3.761.7 For ID regulation, the draft IM specifies a five-year term when estimating the debt premium. We propose updating the estimate of the five-year debt premium on an annual basis.

3.761.8 For PQ, the draft IM specifies a five-year term when estimating the debt premium.

3.762 We discuss the practical approach to estimating the TCSD later in this chapter.

Our approach to selecting the bonds used to estimate the debt premium

- 3.763 New Zealand has only a limited number of bonds that are publicly traded. This can make it difficult to estimate accurately the debt premium for a firm with a specific credit rating and a remaining term to maturity of five years. The draft IM allows us to consider a wider range of credit ratings and issuers, when estimating the debt premium.
- 3.764 Our draft decision includes the down weighting of bonds issued by 100% government owned entities. Yields on such bonds are likely to behave differently and have lower debt premiums than other equivalent bonds. However, partially privatised entities are included. 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.³¹⁹ We expect the same to hold true for the regulated providers where the Crown retains some financing interest.
- 3.765 We also exclude bonds issued by entities operating predominantly in the banking or finance industries.
- 3.766 This still leaves open the question of which other publicly traded bonds are good comparators for the notional debt premium we propose estimating. Ideally, we would use bonds issued by regulated providers in New Zealand of our proposed term and credit rating. In practice we are unlikely to have sufficient data available to restrict our criteria to such a degree.
- 3.767 Our draft decision is to adopt a hierarchical approach to bond selection for regulated FFLAS which makes best use of the available data. Our reasons for this are:
- 3.767.1 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 rating other than the 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.

³¹⁹ 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.

- 3.767.2 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 a comparator individual bonds are with the available data 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.
- 3.767.3 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.
- 3.768 In other sectors we have adopted a hierarchical approach to bond selection.³²⁰ This makes best practical use of the available data on bonds to estimate the debt premium.
- 3.769 The hierarchy of public traded, New Zealand dollar denominated bonds are bonds issued by:
- 3.769.1 Regulated FFLAS providers with the S&P long-term credit rating of BBB+
 - 3.769.2 Telecommunication service providers with the S&P long-term credit rating of BBB+
 - 3.769.3 All other entities with the S&P long-term credit rating of BBB+
 - 3.769.4 Regulated FFLAS providers with a qualifying rating other than the S&P long-term credit rating of BBB+
 - 3.769.5 All other entities with a qualifying rating other than the S&P long-term credit rating of BBB+
 - 3.769.6 An entity that is 100% owned by the Crown or a local authority which still holds an investment grade rating.

³²⁰ Suppliers of electricity lines services, gas pipeline services, and specified airport services we regulate under Part 4.

- 3.770 The reasons for this hierarchy are that we consider regulated FFLAS providers and then telecommunication service providers are the closest matches to our preferred comparators. We prefer issuers of the required 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. We recognise that, given our draft decision that the relevant credit rating will be BBB+, at least initially, the first two categories may in practice produce no comparators.³²¹ However, that may not always be the case.
- 3.771 Our draft decision is that we will also have regard to the NSS approach. 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.
- 3.772 We note 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. It is however subject to the same limitations of all quantitative estimates, that anomalous data may give rise to anomalous results. As such, we have regard to this but place primary weight on our hierarchy of bonds. 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 propose now using for regulated FFLAS.³²²

How these criteria are practically implemented

- 3.773 The practical implementation of these criteria closely match 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.
- 3.774 As explained later in this section, our credit rating draft decision is for BBB+. Given we consider that there are no BBB+ credit-rated regulated FFLAS providers or telecommunications companies issuing bonds in New Zealand, we consider that our previous historic determinations of debt premiums in the energy sector are the relevant associated debt premiums for this exercise. Going forward, this may not always be the case.

³²¹ Chorus is currently rated BBB and Spark, A-.

³²² Commerce Commission "Input methodologies review decision, Topic Paper 4: Cost of capital issues" (December 2016), Attachment D

Compensation for debt issuance costs

Summary of draft decision

3.775 Our draft decision is to provide an allowance for debt issuance costs as follows:

- 3.775.1 20 bps (0.20%) p.a., including an allowance for swap costs of 3-4bps, for a five-year regulatory period;
- 3.775.2 an upward adjustment for three or four-year regulatory periods (on a % p.a. basis) where:
 - 3.775.2.1 the allowance for a three-year regulatory period is 33bps;
 - 3.775.2.2 the allowance for a four-year regulatory period is 25bps.

General explanation of topic

- 3.776 Our proposed IM 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.
- 3.777 Our draft 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).
- 3.778 Only Chorus submitted on this decision area, indicating support.³²³

We provide a debt issuance costs allowance of 20 bps (0.20%) p.a. for a five-year regulatory period

- 3.779 Our draft decision is to provide an allowance for debt issuance costs of 20 bps (0.20%) p.a. for a five-year regulatory period, including an allowance for swap costs of 3-4bps.
- 3.780 Given the variability in costs, we have deliberately not been precise in estimating debt issuance costs, but the baseline 20 bps for a five-year regulatory period broadly represents:
 - 3.780.1 Debt issuance costs – 9-10 bps p.a.;
 - 3.780.2 Swap transaction costs – 3-4 bps p.a.; and
 - 3.780.3 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.

³²³ “We agree with the Commission’s proposal to provide an allowance for debt issuance costs ... adjusted for the term used for the risk-free rate (i.e. the relevant regulatory period).” Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraph 161, see also Chorus "Cross-submission in response to the Commerce Commission's fibre regulation emerging views" (31 July 2019), page 39.

- 3.781 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.³²⁴
- 3.782 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.
- 3.783 Further details on how we reached our draft decision on debt issuance costs are provided in the following sections.

We include debt issuance costs of 9-10 bps p.a for a five-year period

- 3.784 Our draft decision is to provide an allowance for debt issuance costs specifically of 9-10 bps p.a. for a five-year regulatory period.
- 3.785 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.
- 3.786 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.
- 3.787 We will use the estimates we derived from the 2016 confidential debt survey for the IMs relating to the supply of regulated FFLAS.

We include swap costs of 3-4 bps p.a for a five-year regulatory period

- 3.788 Our draft decision is to provide a general 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.

³²⁴ The 'simple' approach to estimating the cost of debt excludes any costs associated with debt issued in foreign markets or bank debt. See paragraphs 3.723-3.735.

3.789 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.

3.790 When arriving at our draft view of the swap cost allowance we have considered relevant evidence before us.

3.791 In reaching the 3-4bps value we propose relying 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:

3.791.1 survey data from suppliers suggested the average cost of executing an interest rate swap was about 2 bps p.a.,³²⁵

3.791.2 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;

3.791.3 average supplier estimates for swap costs in their disclosed TCSD calculations ranged from 0.7 bps p.a. to 3.5 bps p.a.;

3.791.4 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.³²⁶

3.792 We consider that this evidence is 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.³²⁷

³²⁵ Suppliers of electricity lines services, gas pipeline services, and specified airport services we regulate under Part 4.

³²⁶ 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.

³²⁷ 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.

We compensate for 'potential' additional costs of 7-9 bps p.a for a five-year period

3.793 Our draft decision is to provide compensation for the following 'potential' additional costs:

3.793.1 use of brokerage paid on retail bonds;

3.793.2 credit rating costs and cost of headroom/standby facilities; and

3.793.3 new issue premium.

3.794 We have decided not to provide compensation for other costs:

3.794.1 associated with foreign issued bonds; and

3.794.2 issuing bank debt.

3.795 As outlined in our draft decision, at paragraphs 3.723-3.735, 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'.³²⁸

3.796 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.

3.797 Given this approach, we propose not taking 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 are consistent with our proposed 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.

3.798 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

3.799 We have decided that brokerage is likely to result in a debt issuance cost and is therefore a factor contributing to our draft decision to allow a higher debt issuance cost than the direct results of the debt survey.

³²⁸ See paragraphs 3.723-3.735.

- 3.800 Brokerage is a cost associated with a retail bond that can significantly increase the price of debt issuance.³²⁹
- 3.801 Although we consider that brokerage costs may be required to issue bonds efficiently, we note that:
- 3.801.1 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;³³⁰
 - 3.801.2 issuing retail bonds does not necessarily require the payment of brokerage, dependent on market conditions; and
 - 3.801.3 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.
- 3.802 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

- 3.803 Credit rating costs and cost of headroom/standby facilities are potential further factors to include in debt issuance costs.
- 3.804 We recognise, given our proposed 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).
- 3.805 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.
- 3.806 We do not consider that under our proposed simple approach there would be a requirement for both standby facilities and cost of carry for regular refinancing of domestic bonds.

³²⁹ 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.

³³⁰ 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.

3.807 We consider that there may be a small cost associated with maintaining liquidity under our proposed 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.³³¹

Compensation for new issue premium

3.808 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.

3.809 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.

3.810 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.

3.811 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.³³²

3.812 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.³³³

We make an upward adjustment to debt issuance costs for three- or four-year regulatory periods on a pro rata basis

3.813 Our draft decision is to make an upward adjustment to debt issuance costs for three- or four-year regulatory periods on a pro rata basis where:³³⁴

3.813.1 the allowance for a three-year regulatory period is 33bps;

3.813.2 the allowance for a four-year regulatory period is 25bps.

³³¹ 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.

³³² See paragraphs 3.678-3.679.

³³³ 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.

³³⁴ For a three-year period we estimate $33\text{bps} = 20\text{bps} \times (5/3)$, for a four-year period we estimate $25\text{bps} = 20 \times (5/4)$.

- 3.814 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 percentage of total annual debt costs, and that the 20bps should therefore be scaled up on a pro rata basis.
- 3.815 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.
- 3.816 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.
- 3.817 On this basis we propose using pro rata adjusted debt issuance cost allowances of 33bps and 25bps for three- and four-year regulatory periods respectively. We note that we have proposed adjusting the total debt issuance costs allowance on a pro rata basis, not only the swap cost component.

TCS D

Summary of draft decision

- 3.818 The cost of capital IM includes a TCS D 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.³³⁵
- 3.819 Our draft decision is to calculate the TCS D 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.
- 3.820 This formula combines:
- 3.820.1 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’);
 - 3.820.2 a negative adjustment to take account of the lower per annum debt issuance costs that are associated with longer-term debt.
- 3.821 We have decided that the TCS D allowance in the draft IM determination caps the qualifying debt “original tenor” at ten years.³³⁶ We propose this to avoid over-compensation.

³³⁵ Although the TCS D is conceptually a component of the cost of capital, we propose that it is treated as an adjustment to cash flows and is only available to regulated providers who have issued long-term debt to prudently manage their refinancing risks.

³³⁶ We note that this proposed 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

Term credit spread differential

- 3.822 The TCSD is additional compensation for longer-term debt.³³⁷ It is an alternative to assuming a longer debt term. 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. We propose that this TCSD allowance would apply to qualifying providers only where such debt is issued.
- 3.823 The TCSD is conceptually comprised of two elements:
- 3.823.1 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
 - 3.823.2 a negative adjustment to take account of the lower per annum debt issuance costs associated with longer-term debt.

Why we prefer to set out a formula to calculate the TCSD

- 3.824 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.
- 3.825 We note that we have previously used two different methods, in other sectors, to calculate the TCSD:
- 3.825.1 Through the use of Bloomberg NZ 'A' fair value curve, which is no longer published.
 - 3.825.2 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.
- 3.826 Given the practical difficulties associated with the first method, and in particular the availability of the data, our draft decision is to use an estimated fixed relationship.

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." We note that this appears to be an error in those IMs as there is no significant additional debt premium beyond 10 years to compensate and the intent was to "set the maximum tenor allowed in the calculation to be 10 years" IM Review Topic Paper 4, paragraph 914.3

³³⁷ 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.

Why we propose adjusting for debt issuance costs

3.827 Where an issue of debt qualifies for this allowance, to be consistent, we propose that 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

3.828 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

3.829 We calculate the TCSD allowance in two parts: the spread premium and the debt issuance cost adjustment.

3.830 The spread premium is estimated with a formula that uses a fixed linear relationship, where:³³⁸

3.830.1 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

3.830.2 a linear slope is then fitted to the data points associated with a specific credit rating.

3.831 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.³³⁹ This estimate is required for each period we use in our analysis.

3.832 We require an estimate of this relationship in line with our draft decision on credit rating of BBB+ bonds. 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.³⁴⁰

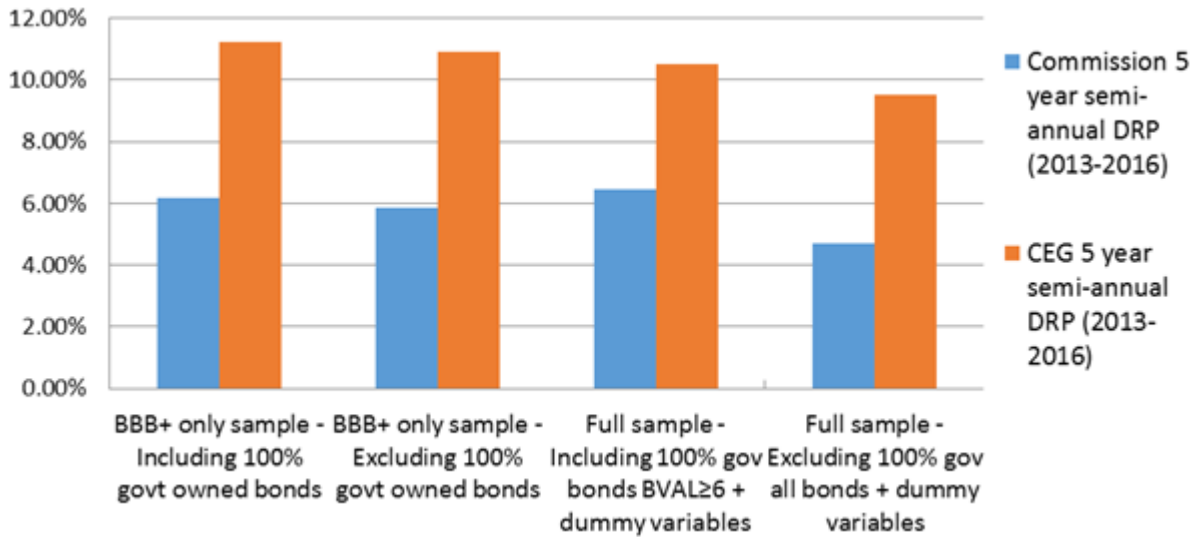
³³⁸ Commerce Commission "Input methodologies review decision, Topic Paper 4: Cost of capital issues" (December 2016), paragraphs 898-899.

³³⁹ 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.

³⁴⁰ We previously undertook these calculations for BBB+ bonds for the purposes of determining the TCSD allowance in our IMs relating to the supply of electricity lines services and gas pipeline services determined under Part 4.

3.833 We compared a range of spread premium estimates derived from five-year debt premium estimates from four different samples, as illustrated in **Figure 3.5**, and concluded that a spread premium of 7.5 bps was a reasonable estimate.

Figure 3.5: Comparison of spread premiums estimates using CEG and Commission estimates of the five-year debt premium



3.834 The evidence from this previous work are presented in the table below including adjustment for reduced debt issuance costs.³⁴¹

3.835 The second 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.

3.836 **Table 3.3** 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 3.3: 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%

³⁴¹ Further details of this calculation are available in Commerce Commission “Input methodologies review decision, Topic Paper 4: Cost of capital issues” (December 2016), Appendix E.

3.837 From combining credit spread premium and the issuance costs adjustment, a relationship between the original tenor of issued debt and the TCSD can be determined.

Table 3.4: TCSD adjustment for different original tenor length (EDBS, GPBS and Transpower)

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%

3.838 To incorporate the TCSD formula for regulated providers in the IMs our draft decision is to:

- 3.838.1 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;
- 3.838.2 use the formula to calculate the TCSD premium for each bond by determining the relevant spread premium and debt issuance costs adjustment;
- 3.838.3 set the maximum tenor allowed in the calculation to be ten years; and
- 3.838.4 apply those values to any qualifying debt which would then enter the cashflows.

Credit rating

Summary of our draft decision

3.839 Our draft decision to set this service-wide notional target credit rating using the S&P long-term credit rating of BBB+.

General explanation of credit rating

3.840 Credit ratings are an indication of a borrower’s creditworthiness. The higher the rating, the lesser 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. 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 with potentially adverse implications for end-users. This is because the increased costs associated with a lower credit rating would be at least partially compensated through the WACC.

3.841 S&P's minimum long-term credit rating to be considered investment grade is BBB-. We consider that the credit rating should provide a sufficient margin above the minimum required for investment grade and 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

3.842 Our draft decision is that we will set a service-wide notional credit rating for regulated providers.

3.843 We consider that the long-term benefit of end-users is only 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).

3.844 To best give effect to the s 166(2) purposes, we must consider what the alternative to a service-wide notional estimate is. 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.

3.845 Specifically, as credit rating worsens, the adverse implications for end-users relate to:

3.845.1 increased credit default risk, and

3.845.2 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.

3.846 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. Excessive levels of debt are not to the long-term benefit of end-users. Hence our draft decision is to decouple the regulated provider's actual credit rating from the one used to estimate the cost of capital for regulated FFLAS.

Why our draft decision is specifying a BBB+ credit rating

- 3.847 Our draft 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.
- 3.848 Our draft decision is to specify a S&P's long-term credit rating of BBB+, as we consider that:
- 3.848.1 this sends the appropriate signal on the prudent long-term level of exposure to credit default risk, and that a credit rating set two notches above the minimum investment grade, at BBB+, sends the appropriate signal as a baseline approach; and
 - 3.848.2 BBB+ is not inconsistent with the comparator sample.³⁴²
 - 3.848.3 We consider that a S&P long-term credit rating of BBB+ (or equivalent rating from a recognised credit rating agency) is appropriate 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. 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, and, in our judgement, a S&P long-term credit rating of BBB+ (or equivalent rating from a recognised agency) is the minimum notional long-term credit rating that provides an adequate margin of safety with respect to regulated FFLAS. Setting the minimum notional long-term credit rating at BBB (being only one notch above the lowest investment grade long-term credit rating) provides a materially lower margin of safety that a reasonable investment grade is maintained in the long-term.
- 3.849 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.

³⁴² We note it is also consistent with the advice from CEPA which has advised BBB/BBB+ is consistent with the comparator set, CEPA, Cost of capital for regulated fibre telecommunication services in New Zealand: Asset beta, leverage, and credit rating – Response to submissions, October 2019, page 43.

3.850 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.

Our draft decision is consistent with our emerging view

3.851 Our emerging views paper laid out our initial view that S&P's long-term credit rating of BBB+ was an appropriate notional rating. We noted that this:³⁴³

- 3.851.1 Provides an adequate margin above the minimum long-term investment grade rating of BBB-.
- 3.851.2 Protects against economic downturns or shocks leading to financial distress such that an efficient operator will still have satisfactory access to debt capital markets at reasonable costs.
- 3.851.3 It is also consistent with the comparator set used to determine asset beta and CEPA's preliminary recommendation for credit rating for regulated FFLAS.

3.852 Submissions generally did not support specifying a S&P's long-term credit rating of BBB+. For example:

- 3.852.1 **Paradice Investment Management Pty Ltd's (Paradice Investment Management)** submission disagreed on the credit rating value.³⁴⁴
- 3.852.2 **Telstra Super Pty Ltd (Telstra Super)** submitted views relating to the actual, notional, comparator sample credit rating approaches: that Chorus operates with a BBB credit rating; BBB is a sufficient safety margin above BBB-; and *"The Emerging Views paper suggests that a BBB+ credit rating flows from the comparator group findings. We note that the Cambridge paper says a finding of BBB/BBB+ is possible on its broad comparator group."*³⁴⁵
- 3.852.3 Another investor, Black Crane Capital, expressed concern with the credit rating proposal, which they describe as inconsistent with leverage.³⁴⁶

³⁴³ Commerce Commission "Fibre regulation emerging views: Technical paper" (21 May 2019), paragraphs 487 to 493.

³⁴⁴ Paradice Investment Management "Fibre Emerging Views submission" (10 July 2019), page 2.

³⁴⁵ TelstraSuper "Fibre Emerging Views submission" (16 July 2019), page 2

³⁴⁶ Black Crane Capital "Submission on Fibre Input Methodologies: Emerging Views Paper" (15 July 2019), page 1.

3.853 We note that these submissions highlight the two options for the notional service-wide credit rating value:

3.853.1 Option 1: ‘comparator sample approach’ – estimating the average credit rating of comparator companies in the asset beta comparator sample (from which we also derive the leverage) and applying this value as the service-wide benchmark credit rating, possibly with an adjustment on a defined basis,³⁴⁷

3.853.2 Option 2: ‘notional credit rating approach’ – selecting a target credit rating through judgement to reflect an appropriate level of credit default risk, with regard to the results from the comparator set, and applying this as the service-wide benchmark credit rating.³⁴⁸

Why we do not favour basing the credit rating entirely on the comparator sample set

3.854 Several submitters preferred option 1 - basing the credit rating on the comparator set used for estimating the asset beta. For example, Chorus (and Oxera), views imply that the comparator sample result should be the primary factor in the notional credit rating decision:

“The comparator sample is a crucial input to the cost of capital parameters for the asset beta, leverage and credit rating. It goes to the core purpose of the cost of capital methodology – to represent the cost of capital of the regulated service in the context of its relative risk.”³⁴⁹

“...our strong view that identifying the best possible comparator sample is the foundation of determining many cost of capital parameters, including the notional credit rating.”³⁵⁰

³⁴⁷ 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.

³⁴⁸ 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.

³⁴⁹ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraph 134

³⁵⁰ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraph 152.

3.855 We also note that Oxera for Chorus submitted a credit rating of BBB, reflecting the median of Oxera's comparator sample.³⁵¹ Oxera, in their report for Chorus, has submitted that a notional credit rating of BBB, and not BBB+, is appropriate on the following basis:

3.855.1 a target credit rating for a stand-alone regulated provider should reflect the greater risk exposure than that of a copper provider: *"Given that a stand-alone FFLAS provider will have greater risk exposure than a copper provider, a target credit rating of BBB and a target gearing of 30% (see section 4C below) consistent with the comparator sample seems appropriate."*³⁵²

3.855.2 other regulators use BBB: "This rating is also in line with recent regulatory precedent—for instance, Ofcom targets a BBB credit rating for BT in the UK."³⁵³

3.856 Other submitters made similar points, for example Paradice Investment Management's submission stated:³⁵⁴

We consider that the recommended BBB+ credit rating proposed in the EV Paper (Section 490) is too high as it is a full 2 notches above the top average rating for both wholesale and integrated service providers.

3.857 We understand that other regulators may use approaches closer to a pure comparator sample approach. This adds little to the considerations on credit rating before us. Other regulators operate in different statutory frameworks with different purpose statements. We must best give, or be likely to best give, effect to the s 166(2) purposes.³⁵⁵

³⁵¹ Oxera "Compensation for systematic risks report - Prepared for Chorus" (15 July 2019, updated 31 July 2019), page 6.

³⁵² Oxera "Compensation for systematic risks report - Prepared for Chorus" (15 July 2019, updated 31 July 2019), page 28.

³⁵³ Oxera "Compensation for systematic risks report - Prepared for Chorus" (15 July 2019, updated 31 July 2019), page 28.

³⁵⁴ Paradice Investment Management "Fibre Emerging Views submission" (10 July 2019), page 2

³⁵⁵ Section 166.

3.858 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 draft decision is not to base the credit rating on the comparator set.

3.858.1 While there are strong reasons for ensuring consistency with the leverage of the comparator set (to avoid having to estimate debt betas),³⁵⁶ the same is not true of the credit rating. 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 as:³⁵⁷

The first step is analysing 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...

3.858.2 It 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,³⁵⁸

3.858.3 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-investment grade. We consider this is an important consideration in what credit rating is to the long-term benefit of end-users.

3.858.4 It would be practically difficult to implement a credit rating estimate from the asset beta sample, at least using CEPA's comparator sample, due to limited credit rating data.

3.859 The notional approach ensures that the benchmark credit rating does not fall below investment grade in the future and, 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.

3.860 We have nonetheless had regard to the comparator set to check that the comparator set is not inconsistent with our draft decision.

³⁵⁶ See paragraphs 3.989 to 3.1019.

³⁵⁷ Standard & Poor's Ratings Services "Corporate Ratings Methodology: Transparency, Comparability" (2014)

³⁵⁸ We consider that an average credit rating, mechanically 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 WACC determinations. There is no knowing how the credit ratings of companies in the comparator sample might evolve, and especially in shock events like global financial crises or recessions. This uncertainty is a key risk of the comparator sample approach.

Why we consider that a BBB+ credit rating provides a sufficient margin above non-investment grade ratings

- 3.861 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 we must exercise judgement.
- 3.862 Several submitters including Telstra Super submitted that BBB is a sufficient safety margin above BBB-.³⁵⁹
- 3.863 When we consider the potential impact of times of financial stress, a single notch above the minimum credit rating may be insufficient. Consequently, in our judgement, we consider that these considerations support a notional credit rating of BBB+. We note that this proposal is also consistent with our approach for the IMs relating to the supply of electricity lines services and gas pipeline services, determined under Part 4.
- 3.864 We note that Chorus currently has a S&P long-term credit rating of BBB (stable)³⁶⁰ but has been under pressure at various times, with changes to its ratings.³⁶¹

Why we consider that a BBB+ credit rating is not inconsistent with other elements of WACC

- 3.865 Some submitters have questioned whether a BBB+ rating would be consistent with other assumptions such as leverage and that this may fail to achieve FCM.³⁶²
- 3.866 We do not consider there is much weight to arguments against the notional approach based on inconsistency between parameters. CEPA have advised us that *"because not all companies in the sample are rated, we cannot infer that the average credit rating is consistent with the average leverage."*³⁶³ Hence it is not actually possible to estimate the credit rating with a comparator sample that is consistent with that used for the other parameters. We note here that CEPA's report has stated that BBB/BBB+ is consistent with the wider comparator set we propose using to estimate the asset beta.

³⁵⁹ TelstraSuper "Fibre Emerging Views submission" (16 July 2019), section 4.

³⁶⁰ Chorus, "Chorus: Investor Roadshow" (October 2018) at page 4. <https://company.chorus.co.nz/file-download/download/public/1911>

³⁶¹ For example <https://www.stuff.co.nz/business/industries/63833002/null>, <https://www.nbr.co.nz/article/chorus-credit-rating-upgraded-copper-decision-capital-management-moodys-says-b-185177>

³⁶² Black Crane Capital "Submission on Fibre Input Methodologies: Emerging Views Paper" (15 July 2019), page 1

³⁶³ CEPA "Cost of Capital for regulated fibre telecommunication services in New Zealand: Asset beta, leverage, and credit rating – response to submissions" (October 2019), page 43.

3.867 With respect to FCM, the purpose of the benchmark WACC is to provide for the financing costs of an efficient regulated provider. As such, as long as we consider that the credit rating is achievable, we consider that we provide for FCM. We note that the leverage of BBB+ rated comparator firms ranges from 17% to over 40%, which supports a leverage of 31% and credit rating of BBB+ as not being inconsistent.

Cost of equity

Purpose of this section

3.868 The purpose of this section is to explain our draft decisions regarding the cost of equity including each of the parameters that make up the cost of equity.

Structure of this section

3.869 The cost of equity is harder to estimate than the cost of debt. Most analysts use a financial model to arrive at an estimate of the cost of equity (the CAPM). In this section, we discuss:

3.869.1 the model we propose using to estimate the cost of equity; and

3.869.2 the value of the parameters we propose using to estimate the cost of equity.

We propose using the simplified Brennan-Lally CAPM to estimate the cost of equity

3.870 Our draft decision is to estimate the cost of equity using the SBL-CAPM. Under the SBL-CAPM, the expected cost of equity is a function of the risk-free rate (after tax), plus the equity beta multiplied by the TAMRP.³⁶⁴

3.871 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 into account international investors.

3.872 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 SBL-CAPM that has become the dominant form of the CAPM used in New Zealand.

³⁶⁴ Under the SBL- CAPM, the cost of equity = risk free rate × (1-investor tax rate) + equity beta × TAMRP.

3.873 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.

3.874 In the New Zealand context, we note that we have used the SBL-CAPM in prior cost of capital decisions.³⁶⁵ We propose using the SBL-CAPM rather than other versions of the CAPM because:

3.874.1 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;³⁶⁶

3.874.2 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; and

3.875 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 discussed below). However, the simplified Brennan-Lally CAPM enjoys such widespread support, and competing models limited support, that there is currently no credible alternative.

Parameters used to estimate the cost of equity under the simplified Brennan-Lally CAPM

3.876 The SBL-CAPM requires us to estimate the following parameters:

3.876.1 the risk-free rate;

3.876.2 the investor tax rate;

3.876.3 asset beta;³⁶⁷ and

3.876.4 the TAMRP.

³⁶⁵ 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.

³⁶⁶ Franks, J., Lally M., & Myers S "Recommendations to the New Zealand Commerce Commission on an Appropriate Cost of Capital Methodology" (2008), page 11.

³⁶⁷ Under the simplified beta leveraging formula for the SBL-CAPM (ie, assuming a debt beta of zero), equity beta = asset beta/(1 - leverage).

3.877 This section explains our proposed approach to estimating each of these parameters.

3.878 We also explain our findings in respect of equity financing costs, which we include as an allowance rather than a specific cost of capital adjustment.

Risk-free rate

3.879 The draft IM applies the same approach to estimate the risk-free rate for both the cost of equity and the cost of debt. 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.

Investor tax rate

3.880 Our draft decision is to set the investor tax rate to reflect the maximum prescribed investor rate under the PIE regime. This rate would apply to investors other than those investors on lower personal tax rates. Under the PIE regime taxes on profits in a PIE are capped at the maximum prescribed investor rate, which is 28%. Therefore, we have included this rate in the draft IM.

3.881 Tax situations specific to particular investors do not, in principle, affect the cost of capital. Taxes are ultimately borne by the individuals themselves, not by the firms of which they are shareholders. Therefore, we have not provided for the tax circumstances of individual investors (for example, accumulated tax losses, inability to use imputation credits).

Asset beta

Summary of draft decision

3.882 The draft IM specifies an asset beta for all regulated providers of 0.49. Combining this estimate with a notional leverage of 31% equates to an equity beta for regulated providers of 0.71.

General explanation of topic

3.883 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,

3.883.1 if an investment had no systematic risk (ie, it showed no correlation with returns on the market), its equity beta would be zero;

3.883.2 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).

- 3.884 Beta is estimated empirically, but also requires a level of judgement. 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, 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.
- 3.885 The beta measures a security's sensitivity to market risk (ie, beta is a measure of exposure to systematic risk). As betas are not directly observable, they need to be estimated. For firms with traded stocks, the beta for the firm can be estimated directly from the historical returns on those stocks, relative to the market's return.

Rationale for draft decision

- 3.886 Our draft decision is to formulate the estimate of the asset beta by:
- 3.886.1 applying a six-step method for calculating the asset beta;
 - 3.886.2 adopting the comparator sample identified by CEPA for the purpose of informing the calculation of asset beta;
 - 3.886.3 including firms that have both equity beta and leverage data;
 - 3.886.4 weighting all firms in the sample equally;
 - 3.886.5 using five-yearly estimates for the periods 2014 to 2019 and 2009 to 2014;
 - 3.886.6 using weekly and four-weekly estimates; and
 - 3.886.7 taking the mean of the resulting estimates.
- 3.887 The six-step method, involves:
- 3.887.1 Step 1, identifying the sample of firms
 - 3.887.2 Step 2, estimating the equity beta for each firm in the sample
 - 3.887.3 Step 3, de-levering each equity beta to get an asset beta
 - 3.887.4 Step 4, calculating the average asset beta for the sample, and
 - 3.887.5 Step 5, applying any adjustments for regulatory differences or systematic risk to the average asset beta for the sample.
 - 3.887.6 Step 6, re-lever the average asset beta for the sample to an equity beta estimate using the Commission's assumed notional leverage.
- 3.888 Our draft decision is to adopt the comparator sample identified by CEPA for the purpose of informing the calculation of asset beta.

- 3.889 Specifically, CEPA's starting point used Industry Classification Benchmarks reported by Bloomberg for the Bloomberg Industry Classification Standard (**BICS**) Level 3 Telecom Carriers / Telecom Resellers when identifying firms to be included in our comparator sample.³⁶⁸
- 3.890 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 seven companies providing tower and satellite services for mobile network operators and broadcasters. Most of the companies they found were vertically integrated service providers across New Zealand, Australia, the UK, the US and continental Europe. They applied filters to the sample to exclude some companies based on factors such as small market capitalisation, insufficient trading history or illiquidity.
- 3.891 The main point raised in submissions on our emerging views paper was that we should not include mobile tower companies or satellite operators in the comparator sample.³⁶⁹ 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.
- 3.892 CEPA reported on the wholesale companies separately, and they are seen to have asset betas that are lower than the asset betas of vertically 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.³⁷⁰
- 3.893 CEPA's view was that share market values of mobile tower companies and satellite operators are influenced by the same forces that influence the share values of regulated FFLAS providers, namely demand for data and high bandwidth applications. Even though mobile tower companies and satellite operators are not providing regulated FFLAS, they are competing in the same market as regulated providers because of the rapidly growing demand for wireless services.³⁷¹

³⁶⁸ See CEPA "Cost of capital for regulated fibre telecommunication services in New Zealand: Asset beta, leverage, and credit rating – Response to submissions" (October 2019), for a full description of CEPA's process for compiling the comparator sample set.

³⁶⁹ 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), Ubiq 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).

³⁷⁰ 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.

³⁷¹ 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.

- 3.894 We agree with CEPA that mobile tower companies and satellite operators are relevant comparators and should be left in the sample. The question about the weight that should be applied to the wholesale versus integrated companies in the sample is a separate matter which is considered further in paragraphs 3.917 below.
- 3.895 Following submissions on the emerging views paper, CEPA looked more closely at the companies in its sample and noted that some derived a large share of their revenue from outside the telecommunications sector. On this basis, they removed some companies from the sample, which we agree with. CEPA also removed companies that had more than 50% of revenue from sources outside their main country of operation, following a submission from Oxera recommending this.³⁷² We also agree with removing these companies.
- 3.896 Submissions suggested companies from other countries could be added to the sample. CEPA agreed to adding companies from Japan, Singapore and South Korea to the sample.
- 3.897 Other adjustments to exclude comparators from the sample were made following suggestions by submitters for companies with very high gearing or large bid-ask spreads.³⁷³
- 3.898 CEPAs' final sample includes ten wholesalers (compared to eight previously) and 53 integrated companies (compared to 51 previously). We consider this sample provides relevant information for calculating the asset beta, credit rating and gearing.
- 3.899 To inform our emerging views paper, CEPA calculated a matrix of asset beta estimates using four-weekly, weekly and daily data across the periods 2009-14, 2014-19 and 2017-19. They also calculated the asset betas separately for Chorus, wholesale-only and integrated service providers.
- 3.900 To arrive at a range, CEPA used the two five-year periods. They took the highest and lowest estimates for wholesale-only companies and calculated the average of 0.41 and took the highest and lowest estimates for integrated service providers and calculated the average of 0.49. CEPA concluded that a reasonable estimate of the asset beta for regulated providers lies in the range from 0.41 to 0.49.³⁷⁴
- 3.901 CEPA used the 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.

³⁷² Oxera "Compensation for systematic risks report - Prepared for Chorus" (15 July 2019, updated 31 July 2019), page 4.

³⁷³ For example, see Oxera "Compensation for systematic risks report - Prepared for Chorus" (15 July 2019, updated 31 July 2019)

³⁷⁴ CEPA "Cost of capital for regulated fibre telecommunication services in New Zealand: Asset beta, leverage, and credit rating – Response to submissions" (October 2019), page 41.

3.902 Submissions raised various arguments for a higher beta, including sample bias, changes in technology, operating leverage, uncertain future cashflows, and averaging period.

Sample bias

3.903 Oxera and Castalia submitted³⁷⁵ 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.

3.904 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 (**ACM**) indicating that demand for regulated FFLAS is likely to be 'sticky' because once an end-user has switched to regulated FFLAS, they are unlikely to switch back.³⁷⁶

3.905 Oxera submitted that CEPA has given too much weight to the wholesale companies. Oxera submitted that all companies should be given equal weight, which reduces the weight of wholesale-only companies because there are only ten of these compared to 53 integrated companies.³⁷⁷

3.906 CEPA explained that it chose its method because it:

3.906.1 accepts that regulated providers are exposed to more demand risk than the wholesale group; but

3.906.2 thinks the regulated providers are exposed to less demand risk than the integrated service provider group because:

3.906.2.1 that group incorporates the demand risk from retail activities such as streaming and business information and communications technology (**ICT**) services; but

³⁷⁵ 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.

³⁷⁶ 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.

³⁷⁷ Oxera "Compensation for systematic risks report - Prepared for Chorus" (15 July 2019, updated 31 July 2019),

3.906.2.2 the maximum revenues required to be specified for regulated providers subject to PQ³⁷⁸ will limit the volatility in returns for regulated providers.

3.907 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.

3.908 We note that CEPA's views are based on deductive reasoning rather than on evidence that asset betas are higher for companies providing regulated FFLAS to end-users.

3.909 There is regulatory precedent for applying a lower asset beta for access 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.³⁷⁹ The case for a lower asset beta was based on:

3.909.1 A qualitative view that the call/data volume risk faced by retailers is higher than for access provider. PwC states:³⁸⁰

it seems reasonable to anticipate that call volumes [i.e. 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.

3.909.2 Previous studies showing lower income elasticities of demand for access compared to demand for various call types.

3.909.3 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.

3.909.4 However, PwC acknowledged that there were methodological problems with some of these studies, and that some studies were dated.

³⁷⁸ 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.

³⁷⁹ PricewaterhouseCoopers LLP "Disaggregating BT's Beta" (June 2005)

³⁸⁰ PricewaterhouseCoopers LLP "Disaggregating BT's Beta" (June 2005), page 11.

- 3.910 NERA Economic Consulting (**NERA**) advised Ofcom in 2018 that it should maintain its approach of setting three different asset betas for the different parts of BT Group's business (Openreach's copper and duct access, ICT activities, and the rest of BT Group, which includes wholesale and retail leased lines services). NERA noted indicative evidence that Openreach's business activities had lower demand variability than the leased lines activities.³⁸¹
- 3.911 Our draft decision is to apply an equal weighting to all firms in the comparator sample. We are concerned that CEPA's method places too much weight on the estimates of wholesale companies. We do not consider there is a good reason for deviating from a straightforward application of the six-step method, which involves applying an equal weighting to all firms in the comparator sample.

Changes in technology

- 3.912 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.³⁸² For a similar reason, Oxera submitted that CEPA should have also used the 2017-19 period.³⁸³ CEPA considered there may be merit in this argument but noted it would result in a similar range of asset betas.³⁸⁴ We note that the estimates of asset betas between the two five-year periods of 2009 to 2014 and 2014 to 2019, shows no significant difference when considered against the standard error.

Operating leverage

- 3.913 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).³⁸⁵ 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.³⁸⁶ CEPA also notes there is no evidence that the regulated providers' operating leverage is higher than the operating leverage of the comparator sample. We do not consider there is a case for adjusting the value of asset beta derived from the comparator sample because of submissions about operating leverage.

³⁸¹ NERA Economic Consulting "Cost of Capital: Beta and Gearing for the 2019 BCMR Prepared for OfCom" (October 2018).

³⁸² 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.

³⁸³ Oxera "Compensation for systematic risks report - Prepared for Chorus" (15 July 2019, updated 31 July 2019), page 5.

³⁸⁴ 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.

³⁸⁵ Oxera "Compensation for systematic risks report - Prepared for Chorus" (15 July 2019, updated 31 July 2019), section 2B.

³⁸⁶ 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.

Uncertain future cashflows

- 3.914 Oxera 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.³⁸⁷ CEPA indicated that Oxera had not provided evidence that investors in companies in the comparator sample do not also have long-term profit expectations, with different levels of uncertainty attached to these expectations.³⁸⁸
- 3.915 Having regard to submissions and the advice from CEPA, overall, we do not consider that these submissions made strong arguments to for us to not use the information in the comparator sample recommended by CEPA. We have separately considered the case for compensating for asset stranding risk in the Asymmetric Risk section below.

Point estimate of asset beta

- 3.916 CEPA's method of calculating the revised range is the same as in its previous report to us, albeit with a change to the companies in the sample:
- 3.916.1 Use the four-weekly and weekly estimates from the two most recent five-year periods (2014-19 and 2009-14);
 - 3.916.2 For wholesale-only companies, take the highest (0.45) and lowest (0.38) estimates and calculate the mid-point (0.41);
 - 3.916.3 For vertically integrated companies, take the highest (0.52) and lowest (0.47) estimates and calculate the mid-point (0.49);
 - 3.916.4 Combine the two mid-point estimates to get a range of 0.41 to 0.49.
- 3.917 We have decided to not follow CEPA's recommended method because we do not think it is consistent with our six-step method, which does not involve forming groups of firms that are weighted differently. Were we to take the mid-point of the range from the CEPA methodology, this would give equal weight to the average of the wholesale-only companies and vertically integrated companies. We believe that while wholesale companies are relevant, the characteristics of FFLAS place them closer to the vertically integrated companies. We believe that there is some justification that wholesale companies have characteristics, such as the nature of the long-term contracts they typically employ, that means they are likely exposed to less systematic risk than regulated FFLAS. Given there are more vertically integrated companies, a simple way to reflect this weighting is to give each company equal weight in arriving at the average asset beta for each five-year period.

³⁸⁷ Oxera "Compensation for systematic risks report - Prepared for Chorus" (15 July 2019, updated 31 July 2019), section 2C.

³⁸⁸ 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.

- 3.918 Hence, we have decided to use the following method to calculate the asset beta from the comparator sample.
- 3.918.1 Include firms that have both equity beta and leverage data³⁸⁹.
 - 3.918.2 Weight all firms in the sample equally for each five-year period.
 - 3.918.3 Use five-yearly estimates for the periods 2014 to 2019 and 2009 to 2014.
 - 3.918.4 Use weekly and four-weekly estimates.
 - 3.918.5 Use data from each reference day available.
 - 3.918.6 Take the mean of the resulting estimates.
- 3.919 We have also had regard to asset betas calculated using daily data and the period 2017-19.
- 3.920 We agree with Aswath Damodaran, Professor of finance at the Stern School of Business at New York University, who suggests that a trade-off exists when choosing a time period for beta estimation³⁹⁰:

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.

- 3.921 There is also a trade-off in choosing to use daily, weekly or four-weekly data.
- 3.921.1 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 infrequently traded.
 - 3.921.2 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.

³⁸⁹ Specifically, we have 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.

³⁹⁰ Estimating Risk Parameters, Aswath Damodaran. Available at: (<http://people.stern.nyu.edu/adamodar/pdfiles/papers/beta.pdf>).

3.922 In reaching our draft decision to give primary weight to weekly and four-weekly betas, we note that:

- 3.922.1 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;
- 3.922.2 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".³⁹¹

3.923 We note that our draft decision is broadly consistent with our:

- 3.923.1 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.³⁹²
- 3.923.2 approach used as part of setting the prices for Chorus' UCLL 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 observations and also considered rolling averages over the last ten years as additional evidence.³⁹³
- 3.923.3 December 2010 decision on IMs for electricity distribution and gas pipeline services, where we used weekly and monthly estimates based on the last trading day of the week or month across a range of five-year periods.

3.924 The estimates of asset betas are provided in **Table 3.5** for the full sample of comparators.

³⁹¹ Alan Gregory, Shan Hua and Rajesh Tharyan "In search of beta" (April 2015).

³⁹² Commerce Commission "Input methodologies review decisions: Topic Paper 4: Cost of capital issues" (December 2016), paragraph 268.

³⁹³ Commerce Commission "Cost of capital for the UCLL and UBA pricing reviews: Final Decision" (December 2015), paragraph 153.

Table 3.5: Estimates of asset betas

Year	Frequency	Asset beta	Standard error ³⁹⁴
2009 – 2014 (44 firms)	Daily	0.51	0.02
	Weekly	0.48	0.05
	4-weekly	0.50	0.11
2014 – 2019 (51 firms)	Daily	0.53	0.03
	Weekly	0.51	0.07
	4-weekly	0.46	0.15
2017 – 2019 (63 firms)	Daily	0.47	0.06
	Weekly	0.46	0.13
	4-weekly	0.41	0.27

3.925 The average estimates for the different time periods using our method are provided in **Table 3.6** below.

Table 3.6: Average estimates for different time periods

	Asset beta
Average 2009-14	0.49
Average 2014-19	0.48
Average for both 5-year periods	0.49

3.926 The resulting asset beta estimates of 0.49 is:

- 3.926.1 higher than the estimate from the 2017-19 period using the weekly and four-weekly data, of 0.44; and
- 3.926.2 lower than the estimate from the two most recent five-year periods using daily data, of 0.50.

³⁹⁴ 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.

- 3.927 We note that Chorus' asset beta, which is only available 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).
- 3.928 Oxera and Castalia submitted that Chorus' asset beta is not reflective of the asset beta for regulated providers because of Chorus' copper access business.³⁹⁵ However, as discussed above, it is not clear to us that Chorus' copper access business has a lower asset beta than its business supplying regulated FFLAS.
- 3.929 Telstra Super and Black Crane Capital submitted that market analyst expectations are of Chorus' asset beta being above 0.5.³⁹⁶ Telstra Super noted CFH's 2010 assessment, based on data for NBN Co and Openreach, which produced a range of 0.50 to 0.65.³⁹⁷
- 3.930 We have sourced the following market analyst reports from early 2019, which indicate asset betas for FFLAS that range from 0.5 to 0.7 with the majority being at 0.5.

Table 3.7: Market analyst reports from 2019

Entity	Date	Asset Beta Estimate
UBS	February, 2019	0.5
Deutsche Bank	February, 2019	0.54
Forsyth Barr	March, 2019	0.6
Macquarie	February, 2019	0.64
Credit Suisse	February, 2019	0.5
Woodward	February, 2019	0.5
Jarden	August, 2019	0.5

3.931 [

] [COI]³⁹⁸

³⁹⁵ Oxera "Compensation for systematic risks report - Prepared for Chorus" (15 July 2019, updated 31 July 2019), page 1 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.

³⁹⁶ TelstraSuper "Fibre Emerging Views submission" (16 July 2019) and Black Crane Capital "Submission on Fibre Input Methodologies: Emerging Views Paper" (15 July 2019)

³⁹⁷ TelstraSuper "Fibre Emerging Views submission" (16 July 2019)

³⁹⁸ [

][COI]

3.932 After taking into account all of the information presented above, we have decided to remain at the average of our comparator sample with an asset beta for regulated providers of 0.49.

Regulated providers subject only to ID regulation should not have a different asset beta to regulated providers subject to PQ regulation

3.933 Our draft decision is to apply the same asset beta to regulated providers subject to PQ as regulated providers subject only to ID regulation.

3.934 Our emerging view was to estimate a service-wide cost of capital that would apply to all regulated providers. We were open to further evidence that asset betas should be adjusted or separately estimated due to different systematic risks across different regulated providers.

3.935 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.³⁹⁹ However, these are business risks rather than systematic risks and are not typically included in the estimate of an asset beta.

3.936 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.⁴⁰⁰ We agree.

3.937 First, it has not been established that smaller companies do have a higher cost of capital than implied by the CAPM.

3.938 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 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.

³⁹⁹ 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.

⁴⁰⁰ 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.

- 3.939 WIK Consult for Enable and Ultrafast submitted that Chorus and the other LFCs have a similar degree of operating leverage due to the 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.⁴⁰¹
- 3.940 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."⁴⁰²
- 3.941 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.⁴⁰³ WIK Consult for Enable and Ultrafast considered that CEPA's reasoning was no excuse for not making an adjustment.⁴⁰⁴

"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".

- 3.942 We note that, as a result 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 control from a weighted average price cap to a revenue cap. We concluded that any change in risk was not material.⁴⁰⁵
- 3.943 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:

price caps should give rise to higher betas than revenue caps (and hybrid price/revenue caps) because price caps expose firms to volume risk and this is at least partly systematic.⁴⁰⁶

- 3.944 However, after reviewing a number of empirical studies, Dr Lally concluded that

there is no empirical study that provides a clear conclusion on the effect of regulation on beta.⁴⁰⁷

⁴⁰¹ 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.

⁴⁰² Oxera "Compensation for systematic risks report - Prepared for Chorus" (15 July 2019, updated 31 July 2019), section 3B.

⁴⁰³ 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.

⁴⁰⁴ 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.

⁴⁰⁵ Commerce Commission "Input methodologies review decision: Topic Paper 4: Cost of capital issues" (December 2016), paragraphs 331-332.

⁴⁰⁶ 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.

3.945 Dr Lally noted that:⁴⁰⁸

...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.

3.946 Overall, we do not know whether the difference in systematic risk for businesses subject to ID regulation or the PQ regime is material, and 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 draft decision

3.947 This section describes the approach to the TAMRP for the draft cost of capital IM applying to the supply of regulated FFLAS.

3.948 The draft IM specifies a TAMRP for all regulated providers of 7.5%.

Our reasons for setting TAMRP at 7.5%

3.949 Our draft 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.

3.950 Our best estimate of the TAMRP is 7.5%. This estimate:

3.950.1 best reflects the range of evidence available, including both historical returns and expected future returns. These are described in greater detail from paragraph 3.963 and combine forward-looking and backward-looking estimates;

3.950.2 is considered reasonable by Dr Lally; and

3.950.3 is consistent with the range of TAMRP estimates used by New Zealand market participants, including New Zealand investment banks.

3.951 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.

⁴⁰⁷ 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.

⁴⁰⁸ 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.

Tax adjusted market risk premium

- 3.952 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 SBL-CAPM is the TAMRP. The TAMRP is neither a regulated provider-specific parameter nor an industry-specific parameter, but rather is common to all assets in the economy.
- 3.953 Most of the underlying data is expressed in terms of the MRP (i.e. before making the tax adjustment that is required in applying this parameter in the SBL-CAPM) and, therefore, 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 a MRP value.
- 3.954 The TAMRP is not directly observable and therefore needs to be estimated. This is because:
- 3.954.1 the TAMRP is an ex-ante (forward-looking) concept and, as a result, reflects investors' expectations; and
 - 3.954.2 the market portfolio itself cannot be observed as market values for many assets are not known, so it requires the use of a proxy (e.g. returns on an index of listed equities).
- 3.955 The TAMRP is also inter-linked with the risk-free rate. When we estimate the TAMRP we need to specify the term of the risk-free rate.

Relevance of the Commission's previous estimates of TAMRP

- 3.956 TAMRP, by definition, is an economy-wide parameter which should not vary by sector, service or company. Given we consider obtaining our best estimate best gives effect to the s 166(2) purposes, as it does in promoting the outcomes in s 52A of the Commerce Act 1986, we see our previous decisions as relevant for informing our estimate of the TAMRP under Part 6 of the Act.
- 3.957 The table below shows the historic series of our estimates of TAMRP for different sectors.

Table 3.8 Estimates of the TAMRP used by the Commission

Decision	Year of Decision	TAMRP Estimate
Airports Inquiry ⁴⁰⁹	2002	8%
Telecommunications Service Obligations (TSO) determinations - 2001-2002	2003	8%
TSO determinations - 2002-2003 onwards	2005 - 2008	7%
Gas Control Inquiry ⁴¹⁰	2004	7%
Unison Networks Limited (Unison) Post-breach Inquiry ⁴¹¹	2007	7%
Gas Authorisation ⁴¹²	2008	7%
IMs relating to the supply of electricity distribution services and gas pipeline services ⁴¹³	2010	7%
IMs relating to the supply of electricity transmission services ⁴¹⁴	2010	7.5% until June 2011 7% thereafter
IMs relating to the supply of specified airport services ⁴¹⁵	2010	7.5% until June 2011 7% thereafter
UCLL & UBA FPP ⁴¹⁶	2015	7%
Review of the IMs determined under Part 4 ⁴¹⁷	2016	7%

⁴⁰⁹ Commerce Commission, *Part IV Inquiry into Airfield Activities at Auckland, Wellington and Christchurch International Airports*, Final report, 2002.

⁴¹⁰ Commerce Commission, *Gas Control Inquiry*, Final Report, 29 November 2004.

⁴¹¹ Commerce Commission, *Regulation of Electricity Lines Businesses - Targeted Control Regime - Reasons for Not Declaring Control - Unison Networks Limited*, 11 May 2007, pp. 38-39.

⁴¹² Commerce Commission, *Gas Authorisation Decisions Paper*, 30 October 2008.

⁴¹³ Input methodologies (EDBs and GPBs) reasons paper, available at: https://comcom.govt.nz/_data/assets/pdf_file/0019/62704/EDB-GPB-Input-Methodologies-Reasons-Paper-Dec-2010.pdf

⁴¹⁴ Input methodologies (Transpower) reasons paper, available at: https://comcom.govt.nz/_data/assets/pdf_file/0026/63890/Transpower-Input-Methodologies-Reasons-Paper-Dec-2010.pdf

⁴¹⁵ Input methodologies (airports) reasons paper, available at: https://comcom.govt.nz/_data/assets/pdf_file/0020/61391/Airports-Input-Methodologies-Reasons-Paper-December-2010.pdf

⁴¹⁶ Cost of capital for the UCLL and UBA pricing reviews, available at: https://comcom.govt.nz/_data/assets/pdf_file/0020/60671/Cost-of-capital-for-the-UCLL-and-UBA-pricing-reviews-15-December-2015.PDF

⁴¹⁷ Input methodologies review decisions, Topic paper 4: Cost of capital issues, available at: https://comcom.govt.nz/_data/assets/pdf_file/0022/60529/Input-methodologies-review-decisions-Consolidated-reasons-papers-20-December-2016.pdf

Term of the risk-free rate used in estimating the TAMRP

- 3.958 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).
- 3.959 Our section on the risk-free rate above discusses what that our draft decision is on the appropriate term of the risk-free rate and our proposal that the term of the risk-free rate in the cost of debt and the cost of equity is matched to the term of the regulatory period.
- 3.960 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.
- 3.961 We note that a parallel issue arose in 2010 where customised PQ paths under Part 4 could also vary in length.⁴¹⁸ 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.⁴¹⁹

Estimating the TAMRP

- 3.962 The TAMRP is a forward-looking concept which cannot be directly observed. Several approaches can be used to estimate the TAMRP. These approaches include:
- 3.962.1 studies of historic returns on shares relative to the risk-free rate;
 - 3.962.2 surveys of investors asking them to state their expected rate of return for the overall market; and
 - 3.962.3 empirical estimates of the MRP from share prices and expected dividends.

⁴¹⁸ Commerce Act 1986, s 53W.

⁴¹⁹ Commerce Commission “Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper” (December 2010), paragraph H7.42.

- 3.963 In proposing a value of the TAMRP, we have considered a range of information sources. Studies of returns we consider comprise of:
- 3.963.1 The Ibbotson approach, this uses data from 1931 to estimate the TAMRP.⁴²⁰ 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.
 - 3.963.2 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.⁴²¹
 - 3.963.3 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.⁴²²
 - 3.963.4 Surveys of investors' views on TAMRP, which are based on the Fernandez annual survey.⁴²³ We have also considered available estimates from practitioners in New Zealand as a cross check.
 - 3.963.5 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. This provides an estimated market cost of equity from which the TAMRP can be derived.
- 3.964 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.⁴²⁴

⁴²⁰ Dr Martin Lally, Capital Financial Consultants Ltd, "Estimation of the TAMRP" (September 2019), pages 4 to 10 provide the detailed approach and calculation.

⁴²¹ Dr Martin Lally, Capital Financial Consultants Ltd, "Estimation of the TAMRP" (September 2019), pages 10 to 13 provide the detailed approach and calculation.

⁴²² Dr Martin Lally, Capital Financial Consultants Ltd, "Estimation of the TAMRP" (September 2019), pages 13 to 15 provide the detailed approach and calculation.

⁴²³ Fernandez, Martinez and Acin, "Market Risk Premium and Risk-Free Rate used for 69 countries in 2019: a survey", IESE Business School, (March 2019).

⁴²⁴ 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.

- 3.965 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.⁴²⁵
- 3.966 Similarly, forward-looking estimates from the DGM are not without controversy.
- 3.966.1 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 (e.g., that there was an inverse relationship between the risk-free rate and MRP). The AER was advised by Partington and Satchell who do not accept this relationship based on the evidence they reviewed.
- 3.966.2 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.
- 3.967 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.
- 3.968 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 recognise there is no one best way to estimate TAMRP and this is consistent with advice from Dr Lally. For our draft 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 draft decision of an estimate of TAMRP of 7.5%

- 3.969 The evidence from forward-looking, historic and survey results of TAMRP support an estimation of the TAMRP at 7.5%.
- 3.970 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%.⁴²⁶ The estimate is based on the median of five different methods as shown in **Table 3.9**, rounded to the nearest 0.5%.

⁴²⁵ See for example Dimson, E., March P. and Staunton M., *Triumph of the Optimists: 1001 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.

⁴²⁶ 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%.

Table 3.9 Estimates of the TAMRP with Three, Four and Five-Year Risk-Free Rates

	New Zealand			Other Markets		
	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%

3.971 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.

Table 3.10: TAMRP estimates by Dr Lally for 2010, 2015 and 2019

Methodology	2010			2015		2019	
	New Zealand	US	Other Markets	New Zealand	Other Markets	New Zealand	Other Markets
Ibbotson	7.27%	7.67%	7.50%	7.10%	7.00%	7.40%	7.60%
Siegel version 1	6.40%	7.30%	6.60%	5.90%	5.90%	6.00%	6.60%
Siegel version 2				8.00%	7.50%	9.50%	8.30%
DGM/Cornell*	5.20%	6.80%	-	7.40%	9.00%	7.30%	8.20%
Surveys	8.20%	6.90%		6.80%	6.30%	6.40%	6.60%
<i>Mean</i>	6.77%	7.17%	7.05%	7.03%	7.14%	7.32%	7.46%
<i>Median</i>	6.84%	7.10%	7.05%	7.10%	7.00%	7.30%	7.60%
Rounded to 50 bps	7.0%			7.0%⁴²⁷		7.5%	

*Cornell used in 2010, DGM in 2015, 2019

⁴²⁷ 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, Dr Martin Lally, Capital Financial Consultants Ltd, Estimation of the TAMRP, September 2019, footnote 2.

3.972 There are several observations which can be made:

3.972.1 The Ibbotson estimates have risen. Dr Lally has explained that:⁴²⁸

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.

3.972.2 The rounding methodology has led to a stable 7% estimate in the past but also causes a 'jump' in the present circumstances.

3.973 Few submissions were received on TAMRP in response to our emerging views paper. Chorus and HoustonKemp agreed we should update the TAMRP and that it should be specified in the IMs.⁴²⁹

3.974 Chorus recently published a presentation given to investors in which it has added to this view that "The current TAMRP underestimates the cost of equity, as it has not yet been adjusted to reflect material reductions in risk-free rates."⁴³⁰

3.975 The estimation of five methodologies by Dr Lally does now reflect the 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.

3.975.1 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 *de-facto* one-to-one inverse relationship between the risk-free rate and MRP. The regulators began placing the most weight on this approach following a 2003 report commissioned by a consortium of UK regulators.⁴³¹ The UK regulators recently (2018) commissioned an update to the 2003 report.⁴³² Professor Stephen Wright was an expert on both reports, and the approach is often referred to as the "Wright approach".⁴³³

⁴²⁸ Dr Martin Lally, Capital Financial Consultants Ltd, Estimation of the TAMRP, September 2019, page 22

⁴²⁹ Houston Kemp "Risk free rate, debt premium and TAMRP - A report for Chorus" (9 July 2019), pages 6 and 7.

⁴³⁰ Chorus, Implementation of fibre access services regulatory framework, 27 September 2019.

⁴³¹ Wright, Mason and Miles, A study into certain aspects of the cost of capital for regulated utilities in the UK, February 2003.

⁴³² Wright, Burns, Mason and Pickford, Estimating the cost of capital for implementation of price controls by UK Regulators, March 2018.

⁴³³ This is equivalent to the Siegal version 2 methodology.

3.975.2 The AER, in its 2018 binding rate of return guidelines⁴³⁴ 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*”.⁴³⁵ The AER was advised by Partington and Satchell who do not accept this relationship based on the evidence they reviewed.⁴³⁶

3.975.3 Even within Australia there are differences as the Queensland Competition Authority places some weight on both the Wright approach and the DGM approach.⁴³⁷

3.976 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.

Other evidence on the TAMRP

3.977 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%. This is not inconsistent with a TAMRP of 7.5%.

Table 3.11: TAMRP estimates used by New Zealand investment banks and analysts

Investment bank	Published	TAMRP estimate used
UBS	<i>Feb, 2019</i>	7%
Deutsche Bank	<i>Feb, 2019</i>	6.5%
Forsyth Barr	<i>Mar, 2019</i>	7.8%
Macquarie	<i>Feb, 2019</i>	7%
Credit Suisse	<i>Feb, 2019</i>	7.4%
Woodward	<i>Feb, 2019</i>	7%
Jarden	<i>Aug, 2019</i>	7.4%

⁴³⁴ AER, “Rate of return instrument: Explanatory Statement” (December 2018).

⁴³⁵ AER, “Rate of return instrument: Explanatory Statement” (December 2018), page 85

⁴³⁶ 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.

⁴³⁷ See Queensland Competition Authority, Aurizon Network’s 2017 draft access undertaking, December 2018.

Why we round TAMRP to the nearest 50 basis points

- 3.978 We accept the advice we have previously received from Dr Lally on this point and consider it relevant for FFLAS.
- 3.979 Dr Lally's rationale for the rounding methodology has been laid out by him in full in a report to the Queensland Competition Authority which he refers to in his papers.⁴³⁸ He considers that the rounding:
- 3.979.1 Has little impact on the accuracy of the estimation measured through the standard error.
 - 3.979.2 However, its value impact will incentivise submissions advocating an increase (or decrease) which adds to administrative burden.
 - 3.979.3 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.
- 3.980 We agree that the estimation of TAMRP is inherently subject to significant 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.

Why we propose specifying the value of TAMRP within the IMs

- 3.981 We consider there is no 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. We consider it better meets the purpose of the IMs in s 174 to promote certainty to specify a number within the IMs. This does not preclude the actual TAMRP moving between reconsiderations. As we discuss in our rounding methodology in paragraph 3.979, our ability to discern small movements in the TAMRP is limited.
- 3.982 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.
- 3.983 We are also cognisant that, in principle, there is no compelling reason as to why the TAMRP would differ between the sectors we regulate. In each case we seek to obtain our best estimate of the TAMRP and the TAMRP is an economy-wide variable.

⁴³⁸ Lally, M., "The risk-free rate and the market risk premium" (August 2012).

3.984 We note that under s 52Y of the Commerce Act 1986, the next review of the cost of capital IMs determined under Part 4 must be completed by December 2023. This review may result in us amending the TAMRP for suppliers of regulated services under Part 4. We welcome your views on whether we should also review our TAMRP for suppliers of regulated FFLAS at the same time as our review of the cost of capital IMs under Part 4.

Equity issuance costs

3.985 Our draft decision is to not include equity issuance costs.

3.986 We did not provide a view on equity issuance costs in the emerging views paper and we did not receive any submissions on this matter.

3.987 We do not consider that an allowance for equity issuance costs is required because:

3.987.1 Equity capital is normally available into perpetuity and does not need regular refinancing.⁴³⁹

3.987.2 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.

3.987.3 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.

3.988 Consequently, we have not included an equity issuance cost allowance as part of the cost of capital IMs.

Leverage

Purpose of this section

Summary of draft decision

3.989 The cost of capital IM specifies a service-wide notional leverage of 31% when estimating the cost of capital for regulated FFLAS.

General explanation of topic

3.990 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.

⁴³⁹ In contrast, debt capital normally has a finite period to maturity, so debt capital needs to be re-financed regularly.

We address the leverage anomaly of the SBL-CAPM

- 3.991 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.
- 3.992 Our draft decision is to address this positive relationship between leverage and WACC, the leverage anomaly of the SBL-CAPM, through our proposed approach to leverage estimation.
- 3.993 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, 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).
- 3.994 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.
- 3.995 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.⁴⁴⁰
- 3.996 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. This is because interest costs are tax deductible to the firm, but dividends are not.⁴⁴¹
- 3.997 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.⁴⁴²
- 3.998 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.⁴⁴³

⁴⁴⁰ Modigliani, F., Miller, M. The Cost of Capital, Corporation Finance and the Theory of Investment, American Economic Review, Vol. 48, No. 3, 1958, pp. 261–297.

⁴⁴¹ Modigliani, F., Miller, M., Corporate income taxes and the cost of capital: a correction, American Economic Review, Vol. 53, No. 3, 1963, pp. 433–443.

⁴⁴² 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.

⁴⁴³ Lally, M., WACC and Leverage, Report to the Commerce Commission, 17 November 2009.

3.999 This positive relationship between leverage and WACC is inconsistent with the behaviour of firms in workably competitive markets. Firms in those markets issue debt, providing debt levels are prudent, and are considered to be acting rationally when doing so.

3.1000 In regard to regulated providers this anomaly, if left uncorrected, 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

3.1001 Our draft decision is to use a service-wide notional leverage to address the leverage anomaly of the SBL-CAPM.

3.1002 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.

3.1003 We identify two main options to overcome the leverage anomaly in the SBL-CAPM model:

3.1003.1 Option 1: use a notional leverage informed by the average leverage of the sample of comparator companies used to estimate asset beta, or

3.1003.2 Option 2: use non-zero debt betas.

3.1004 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.

3.1005 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.

3.1006 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.⁴⁴⁴

⁴⁴⁴ Lally, M., WACC and Leverage, Report to the Commerce Commission, 17 November 2009, page 7.

3.1007 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. 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.^{445 446}

3.1008 We note that no submitters raised concerns on our emerging view to use a notional leverage and Chorus indicated support of the notional approach.⁴⁴⁷ 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

3.1009 Our draft 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.

3.1010 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 draft decision is to:

3.1010.1 use the comparator sample identified by CEPA for the purpose of informing the calculation of asset beta, described at paragraph 3.882-3.911;

3.1010.2 use our own averaging methodology (on that comparator sample), consistent with the method to calculate asset beta, described at paragraph 3.918;

3.1010.3 have regard to the average leverage calculated using the period 2017-19, also consistent with our approach to asset beta described at paragraph 3.919.

⁴⁴⁵ 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.

⁴⁴⁶ In 2010 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), paragraphs H3.42-H3.45 and H3.59-H3.64.

⁴⁴⁷ Oxera "Compensation for systematic risks" (July 2019), page 39.

3.1011 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.

3.1012 No submitters raised concerns on our emerging view to use a comparator sample estimate to inform the notional leverage. Oxera for Chorus indicated support for this approach.⁴⁴⁸

The leverage results for the comparator sample

3.1013 Consistent with our approach to estimating asset beta, our draft 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 31%.

Conclusion – leverage

3.1014 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.

3.1015 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.

3.1016 However, there are practical difficulties in accurately estimating debt betas.

3.1017 Accordingly, we will use a notional leverage informed by the average leverage of the sample of comparator companies used to estimate asset beta; our draft IM determination will not reflect the use of debt betas.

3.1018 Our draft decision is that it is not appropriate to use actual leverage for any regulated provider. That is, 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.

3.1019 The draft IM specifies a service-wide notional leverage of 31% when estimating the cost of capital for regulated providers.

⁴⁴⁸ Oxera “Compensation for systematic risks” (July 2019), page 6.

Taxation

- 3.1020 Our draft decision is 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).
- 3.1021 Our draft decision is 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.
- 3.1022 Our draft IM determination will allow for any future changes in tax rates to flow through to the calculation of the cost of capital.
- 3.1023 Our draft 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.

Why we set the corporate tax rate to 28%

- 3.1024 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.
- 3.1025 The statutory corporate tax rate is 28%. Our draft decision is to therefore adopt this rate when estimating the cost of capital.
- 3.1026 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%

- 3.1027 The investor tax rate is the average personal tax rate across all investors in the economy. This forms part of the SBL-CAPM equation.
- 3.1028 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, with the result that equity returns are essentially tax free while interest income is not.
- 3.1029 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%.

3.1030 We will allow for changes in the investor tax rate for future possible changes to the PIE regime on an ongoing basis.

3.1031 Therefore, our draft decision is to use an investor tax rate of 28%.

3.1032 We will allow for changes in the investor tax rate for future possible changes to the PIE regime on an ongoing basis.

Estimating a WACC range

3.1033 This section discusses our approach to determining the estimates of the standard error of the WACC in order to estimate a WACC range. Our draft decision is to estimate a cost of capital range by estimating and combining individual parameters' standard error which we then specify in the IM and apply in WACC determinations.

3.1034 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. We must make a judgement call as to how the IM should address the consequences of potential error.

3.1035 Typically, we are faced with uncertainty when we estimate the cost of capital. These uncertainties include the statistical error surrounding individual parameter estimates.

3.1036 Our draft decision is that the IM accounts for uncertainties in parameter estimates by deriving a plausible range for the cost of capital (rather than a single point estimate) that reflects the possible spread between estimated and true parameter values underlying the cost of capital.

3.1037 We must make an allowance for the potential errors that are reasonable in the particular circumstance in which the cost of capital is to be used, but without producing a range that is so broad as to be meaningless and of no practical use in assessing profitability or determining PQ paths.

3.1038 We note that our methodology for calculating the standard error 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 in 2010.

Purpose of the standard error

3.1039 Our draft decision is to use a standard error to provide a sense of the range of possible results for the true cost of capital and, where we provide an uplift for the cost of capital, the standard error would allow us to estimate the cost of capital at a particular percentile.

3.1040 For the purposes of regulated FFLAS, the standard error will be published against our mid-point WACC to allow the calculation of other percentiles.

3.1041 When we calculate the benefits required to justify a percentile of WACC higher than the mid-point, we will use this estimate of the standard error, which is important in deriving the results.

Our methodology for calculating the range

3.1042 We have considered four possible approaches to estimating the cost of capital range, these are:

3.1042.1 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.

3.1042.2 Method 2: The standard analytical approach: this consists of estimating the statistical measure of uncertainty for each parameter (the standard error) which contains significant uncertainty and combining them to derive the overall standard error or level of uncertainty.

3.1042.3 Method 3: The simulation approach: for each parameter that we consider 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. A simulation approach may have the ability to be as simple or complex as required. An example of this approach is the Monte Carlo method.⁴⁴⁹

3.1042.4 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.

3.1043 Our draft decision is that the standard analytical approach is most appropriate.

3.1044 The advantages of the standard analytical approach are that it is not so heavily reliant on judgement as method 1 while simulation methods 3 or 4 offer no significant additional benefit. 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.

⁴⁴⁹ 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.

3.1045 For the standard analytical approach, we use the following formula to combine the standard error estimates of each parameter:

$$\sqrt{\text{var}(TAM\hat{MRP})\text{var}(\hat{B}_a) + E^2(TAM\hat{MRP})\text{var}(\hat{B}_a) + E^2(\hat{B}_a)\text{var}(TAM\hat{MRP}) + (1 - T_c)^2 [\text{var}(\hat{p})\text{var}(\hat{L}) + E^2(\hat{p})\text{var}(\hat{L}) + E^2(\hat{L})\text{var}(\hat{p})]}$$

where:

$\text{var}(TAM\hat{MRP})$ is the square of the standard error of the estimated tax adjusted market risk premium;

$E^2(TAM\hat{MRP})$ 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.

3.1046 This leaves how we will estimate the standard error for each individual parameter. We have split this into those parameters where our draft decision is to set the standard error at zero, and those where an estimate is appropriate.

The parameters where our draft decision is to set the standard error at zero

3.1047 Our draft decision is that for leverage, corporate tax, debt issuance costs and risk-free rate, no allowance for standard error is required for the reasons we lay out below.

3.1047.1 **Leverage:** to address the leverage anomaly we will use a notional leverage estimate based on the average leverage of the comparative firms' sample set. This is to make the cost of capital invariant to changes in leverage. Applying a standard error would undermine this purpose.

3.1047.2 **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 which occur over a PQ path 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.

3.1047.3 **Debt issuance costs and tax rates:** we consider that these parameters are not associated with significant levels of uncertainty.

3.1048 This leaves error associated with estimating the debt premium, TAMRP and asset beta where we need to decide how best to estimate the standard errors.

Our approach to the standard error of asset beta

3.1049 When we estimated the asset beta from our comparator set, this provided a standard error associated with the 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 2008.⁴⁵⁰ These are combined by each five-year period and separately calculated for weekly and 4 weekly estimates.

3.1050 Table 3.12 below shows these estimates.

Table 3.12: Weekly and four-weekly estimates of asset beta

	2009-14	2014-19
Weekly	0.25	0.16
Four-weekly	0.34	0.11

3.1051 We have based our estimate of the asset beta on a combination of the latest two five-yearly periods and both weekly and four-weekly estimates. This provides an associated standard error estimate of 0.21. In our view, this implied range is implausibly large. This has been driven by the very large standard errors for the five-year period of 2009 to 2014 which imply a range of two standard deviations around the mean of between -0.1 to 1.07 for that period.⁴⁵¹

⁴⁵⁰ See Lally “The Weighted Average Cost of Capital for Gas Pipeline Businesses” (October 2008), Appendix 3.

⁴⁵¹ 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. We also note TPG Groups asset beta across 2009 – 2014 looks like a significant outlier, its monthly beta is greater than two and weekly beta greater than one. However, excluding this firm would still leave a material difference in standard errors between the two five-year periods while having a minimal impact on the estimated asset beta.

3.1052 Our draft decision is to adopt the standard error for only the latest five-year period between 2014 to 2019 for the following reasons:

- 3.1052.1 an asset beta of 0.49 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 0.07 to 0.91). This range exceeds all information before us on views and evidence of the likely asset beta;
- 3.1052.2 there is a significant difference between the standard error estimates for the two five-year periods (the standard error for 2009 to 2014 is approximately 0.29 and for 2014 to 2019 it is 0.13);
- 3.1052.3 the purposes of ID regulation would be undermined by a standard error which provided an implausible range;
- 3.1052.4 the standard error for the period between 2009 to 2014 is clearly implausible as it implies a negative asset beta and an asset beta for regulated FFLAS which is above one as possible; and
- 3.1052.5 using the latest five-year estimate grounds the estimate in relevant data while maintaining a plausible range.

3.1053 Our draft decision is therefore to set the standard error for the asset beta of 0.13.

Our approach to the standard error of TAMRP

3.1054 The TAMRP is a difficult parameter to estimate and subject to substantial potential error. In 2008 Dr Lally estimated the error associated with the TAMRP at 0.015. 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.

3.1055 In light of no further evidence, our draft decision is to use the estimate of 0.015 for what is an economy-wide parameter.

3.1056 We note that the survey by Fernandez, used within our overall methodology for estimating the TAMRP, also provides the standard deviation of the MRP used by analysts and companies.⁴⁵²

3.1056.1 For New Zealand, the standard deviation of the MRP was 0.004.

3.1056.2 For the US, the standard deviation of the MRP was 0.018.

⁴⁵² Fernandez, Martinez and Acin, Market Risk Premium and Risk-Free Rate used for 69 countries in 2019: a survey, IESE Business School, March 2019.

3.1057 We note the smaller standard error 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). Overall, our draft decision is to use a 0.015 estimate of the standard error in the IM.

Our approach to the standard error of the debt premium

3.1058 The debt premium is an estimate and as such has uncertainty associated with it. Our draft decision is that the standard error captures this uncertainty and will be estimated alongside the debt premium parameter.

3.1059 Our draft decision is that a fixed standard error for the debt premium of 0.0015 should apply. 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

\bar{x} is the mean value of these observations (the debt premium estimate).⁴⁵³

3.1060 Our draft decision is to not use 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 needs to more than double to have any impact on the standard error of the WACC (when rounded to four decimal places).

3.1061 The standard error of the debt premium of 0.0015 could potentially be refined for regulated FFLAS. However, as we noted in 2016, 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. Therefore, we have determined that a fixed standard error of the debt premium of 0.0015 should apply.

⁴⁵³ We note that this formula was used for the standard error of debt premium for the IMs relating to the supply of electricity lines services, gas pipeline services and specified airport services, determined under Part 4, in 2010. 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 remove this formula and, instead, introduced a fixed standard error of the debt premium of 0.0015. See Commerce Commission "Input methodologies review decision: Topic Paper 4: Cost of capital issues" (December 2016), paragraph 602.

Our draft overall estimate of the standard error

3.1062 In combination these individual estimates for asset beta, TAMRP and debt premium provides an overall estimate of the standard error of around 0.0124.⁴⁵⁴

Adjusting for the ongoing benefit of Crown financing

Purpose of this section

3.1063 This section explains the reasons for our draft decision on accounting for the ongoing benefit of Crown financing over the post-implementation period.

Approach to accounting for the ongoing benefit of Crown financing

3.1064 The asset valuation IM chapter describes how the opening value of the RAB at 1 January 2022 will include the financial loss asset but subtracting the benefit of Crown financing over the pre-implementation period.

3.1065 To ensure transparency of the ongoing benefit of Crown financing post-implementation, our draft decision is to create a building block that reflects this ongoing benefit.

3.1066 This building block will be included in the revenue calculation and it will be the interest and/or equity payments that are avoided each year as a result of Crown financing. Specifically, where the Crown financing was effectively debt financing, the value of this benefit will be calculated by multiplying the cost of debt for the relevant year by the nominal total opening value of Crown concessionary financing. The deductions will continue until the Crown funding is repaid⁴⁵⁵.

3.1067 For Chorus, the cost of debt used to calculate the benefit of concessionary financing will take into account on the actual nature of the financing provided by the Crown, rather than the benchmark BBB+ credit rating that will be used in the WACC calculation. We consider that this is consistent with section 177(3)(b), which provides for us to refer to the actual financing costs incurred by regulated providers when accounting for the benefit of Crown financing.

3.1068 The return on assets will be calculated by applying the WACC to the full opening value of the RAB each year (that is, the value that includes the financial loss asset but excludes the benefit of Crown funding).

3.1069 We will maintain visibility of the different components of the RAB by separately reporting on the financial loss asset and the benefit of concessionary Crown financing.

⁴⁵⁴ 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.

⁴⁵⁵ Where the Crown financing was effectively equity financing, the value of the benefit will be calculated by multiplying the cost of equity by the nominal opening value of the value of Crown financing.

3.1070 We have considered alternative approaches in this asset valuation chapter and consider that the most transparent way of accounting for the ongoing benefit of Crown financing is to make an explicit adjustment to the revenue calculation when determining maximum revenue for a PQ path.

Uplift to reflect asymmetric consequences of under-investment

Purpose of this section

3.1071 This section explains the reasons for our draft decision on the WACC percentile for regulated FFLAS in respect of PQ and ID regulation.

Approach to considering an uplift to the WACC

Summary of draft decision

3.1072 Having considered the evidence and weighed how best to give effect to the s 166 purposes of the Act, our draft decision is to use the mid-point estimate of the WACC for the purposes of PQ of regulated FFLAS. Our draft 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 purpose of Part 6 in s 162, nor promote competition for the long-term benefit of end-users of telecommunications markets.

3.1073 We also intend to publish the mid-point of the WACC and the standard error for the purposes of ID regulation of regulated FFLAS.

The rationale for providing an uplift

3.1074 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 fundamental uncertainty and mis-estimation risk.

3.1075 An uplift is appropriate where the long-term costs to end-users from under-estimating the WACC are higher than over-estimating the WACC.

3.1075.1 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.

3.1075.2 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.

- 3.1075.3 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.
- 3.1075.4 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 other aspects of the regulatory regime.
- 3.1075.5 Where the net costs of a WACC mis-estimation causing over-investment 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 draft decision for the WACC that applies to PQ paths

3.1076 We consider that in the factual context of regulated FFLAS, we do not consider that the potential benefits that would flow to end-users from a higher than mid-point WACC outweigh the certain costs they would face. In particular:

- 3.1076.1 The relative newness of the regulated FFLAS networks, the more gradual and visible expected consequences of under-investment in regulated FFLAS and the potential mitigation of the risk of under-investment due to greater potential competition and asset stranding risk (albeit small). This means that the expected scale of costs to end-users from under-investment appears an order of magnitude less than the certain costs they would face.
- 3.1076.2 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. We discuss these in paragraphs 3.1206 to 3.1212.

Rationale for our draft decision for the purposes of ID regulation

3.1077 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,⁴⁵⁶ and investment is more 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 for 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.

⁴⁵⁶ Section 191.

Consideration of economic framework

3.1078 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

3.1079 This section has seven further sections.

3.1079.1 Framework for our decision on the WACC percentile.

3.1079.2 The problem the WACC percentile is meant to address

3.1079.3 Qualitative evidence of the case for an above mid-point WACC.

3.1079.4 Quantification of the case for an above mid-point WACC.

3.1079.5 Other considerations which have arisen in considering the case for an above mid-point WACC.

3.1079.6 Our view regarding the appropriate WACC percentile for PQ.

3.1079.7 Our view regarding the appropriate WACC percentile for ID regulation.

Framework for our decision on the WACC percentile

3.1080 This section describes the framework we have used in making our decision on the appropriate WACC percentile.

Statutory context for our decision

3.1081 As with all IM decisions, the WACC percentile set by us 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)

3.1082 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.

3.1083 In reaching our decision on the draft 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 draft decision to apply the mid-point of the WACC for PQ and ID regulation strike 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 within the text.

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

3.1084 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 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 3.1086.

3.1085 Our expert panel noted:⁴⁵⁷

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 (i.e. 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.

3.1086 We note that the purpose of a WACC uplift we are considering here is to mitigate 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.

⁴⁵⁷ Martin Cave & Ingo Vogelsang "Financial capital maintenance and its role in fibre regulation in New Zealand" (May 2019) paragraph 3.1.

3.1087 While it is possible that an uplift would promote competition in telecommunications markets, we consider that an uplift would not promote competition without 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.

3.1088 We also note a WACC uplift may 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, where competition does emerge for a regulated FFLAS, we would consider recommending deregulation for that regulated FFLAS⁴⁵⁸ 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.

3.1089 We recognise in both the above considerations that the details of the specific case matter.

3.1090 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

3.1091 Many submissions on our emerging views paper reference the decision taken under Part 4 to apply the 67th percentile of the WACC for electricity lines businesses and gas pipeline businesses.

3.1092 That decision was made under a different statute,⁴⁵⁹ with a different statutory purpose and a different industry.⁴⁶⁰ 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.

⁴⁵⁸ Section 210.

⁴⁵⁹ The IMs relating to the supply of electricity lines services and gas pipeline services were made under the Commerce Act 1986, rather than the Telecommunications Act 2001.

⁴⁶⁰ Commerce Act 1986, s 52A.

3.1093 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 draft 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).

3.1093.1 There have been various pieces of expert advice commissioned or received as part of these previous processes which are relevant to these considerations. We draw upon these in our analysis.

3.1093.2 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.

3.1093.3 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.

3.1094 However, there are also limits to the parallels that can be drawn. Ultimately, we must base our decision on the factual context of regulated FFLAS and best give, or be likely to best give, effect to the purposes of s 166(2). The fact we did or did not choose a percentile above the mid-point in other sectors we regulate does not determine our choice here.

3.1095 We 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 Act 1986 (**Part 4 IMs merits appeals**). While this was in regard to considerations under Part 4, it is possible that some of those criticisms will still be relevant to the current considerations.

3.1096 The High Court referred to a number of "tentative in-principle arguments" counter to our approach⁴⁶¹, including scepticism regarding the case for a WACC substantially higher than the mid-point and our minimal reference to "loss function"⁴⁶² analysis.⁴⁶³ The High Court concluded that it would expect its scepticism would be considered by us and that consideration would include further analysis.⁴⁶⁴

⁴⁶¹ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1471].

⁴⁶² 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.

⁴⁶³ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1464] and [1486].

⁴⁶⁴ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at 1486].

3.1097 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’).⁴⁶⁵ A loss analysis approach seeks to quantitatively determine the costs and benefits to end-users of a higher or lower percentile.

3.1098 We also draw down upon previous expert advice we have received. In his 12 June 2014 paper, Professor Vogelsang considered the economic effects associated with allowing a WACC above the mid-point. Some of his conclusions are generic across sectors and we note his views that:⁴⁶⁶

3.1098.1 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).

3.1098.2 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 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.⁴⁶⁷

The starting point for our draft decision

3.1099 The consideration of the WACC percentile asks the fundamental questions of:

3.1099.1 Is there any reason to depart from the mid-point ie, the best parameter-based estimate we have of the cost of capital?

3.1099.2 If so, what is the most appropriate percentile?

⁴⁶⁵ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1464].

⁴⁶⁶ 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.

⁴⁶⁷ 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.

3.1100 A number of submissions appear to imply a different starting point and that evidence to the contrary would be needed to apply the mid-point WACC.

3.1101 Our draft 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.

3.1102 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.

3.1103 HoustonKemp's report considered that the choice of WACC percentile came down to a trade-off between dynamic and static efficiency, and that in telecommunications, dynamic efficiency is generally considered to be heightened.

"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."⁴⁶⁸

3.1104 Similarly, Chorus have stated that.⁴⁶⁹

The dynamic nature of the supply and demand for FFLAS distinguishes the circumstances of previous cost of capital percentile decision 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.

3.1105 The HoustonKemp and Chorus submissions seem to suggest that dynamic efficiencies are so important within telecommunications that our starting point should be an 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.*'⁴⁷⁰

⁴⁶⁸ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page ii

⁴⁶⁹ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views". 21 May 2019, paragraphs 167 - 168.

⁴⁷⁰ Ian M Dobbs, Welfare effects of UCLL and UBA uplift: comments on the Application of the Dobbs 2011 model, May 2015, paragraph 10.

3.1106 HoustonKemp also quote the original 2010 input methodology reasons paper for electricity distribution and gas pipeline services on favouring dynamic efficiency.⁴⁷¹

3.1107 However, it was the reliance on general statements on the benefits of dynamic efficiencies rather than evidence which the High Court criticised during the IM merits appeals.⁴⁷²

3.1108 Dynamic efficiency statements, unto 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.

3.1109 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.⁴⁷³

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.

3.1110 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.

3.1111 Nonetheless we understand why parallels are drawn with our approach under Part 4. Consequently, where appropriate, we have explained why we reach a different conclusion for regulated FFLAS.

⁴⁷¹ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), pages 7 and 8.

⁴⁷² *Wellington International Airports Limit & Ors v Commerce Commission* [2013] NZHC (December 2013), paragraphs [1462], [1470]-[1479].

⁴⁷³ 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, Paradise Investment Management "Fibre Emerging Views submission" (10 July 2019), page 2

The problem the WACC percentile is intended to address

- 3.1112 As 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.
- 3.1113 The consequences of setting WACC too high are different from the consequences of setting WACC too low.
- 3.1114 If the allowed WACC is too high, the prices paid by end-users of regulated FFLAS will be too high. As a result:
- 3.1114.1 regulated providers are likely to earn above-normal returns at the expense of end-users;
 - 3.1114.2 due to the high returns they can earn on their investment, regulated providers may also invest more than end-users would like;
 - 3.1114.3 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
 - 3.1114.4 therefore, end-users may suffer a loss if the WACC is too high.
- 3.1115 End-users may also suffer loss if the allowed WACC is too low.
- 3.1115.1 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.
 - 3.1115.2 Over time, any such under-investment is likely to result in a decline in the quality of service provided to end-users (subject to 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.
 - 3.1115.3 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.
- 3.1116 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

3.1117 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.

3.1118 In particular, we have considered:

3.1118.1 how the expected losses from over-estimating WACC compare to the expected losses from under-estimating WACC; and

3.1118.2 whether the expected losses are broadly symmetric, so they offset each other (on an ex-ante basis), or whether they are different (asymmetric).

3.1119 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.

3.1120 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.

3.1121 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.

3.1122 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 WACC (given the probability of the WACC being under-estimated) are equal to the losses expected at the margin from over-estimating WACC (given the probability of WACC being over-estimated).

The WACC uplift is only one of many regulatory factors that determine investment incentives

3.1123 HoustonKemp's report notes the direct link between WACC and incentives to invest under a BBM model. They also note the wash-up provisions strengthens this link.⁴⁷⁴

3.1124 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.

⁴⁷⁴ Section 196.

3.1125 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.⁴⁷⁵ We agree, however, as we explained in the emerging views paper, this was not the only reason.⁴⁷⁶ Our reasoning included:⁴⁷⁷

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.

3.1126 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.

3.1127 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.

Qualitative evidence of the case for an above mid-point WACC

3.1128 The majority of submissions on the emerging views paper, on this topic, 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.

Our emerging view was that we should use the mid-point WACC

3.1129 Our emerging view was:⁴⁷⁸

3.1129.1 Regulated FFLAS are new networks;

3.1129.2 Alternative technologies are likely to mitigate the costs of under-investment;

⁴⁷⁵ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), 15 July 2019, page 6.

⁴⁷⁶ Commerce Commission, Fibre regulation emerging views: Technical Paper, May 2019, paragraph 548

⁴⁷⁷ Commerce Commission, Cost of capital for the UCLL and UBA pricing reviews: Final Decision, December 2015, paragraph 221.2

⁴⁷⁸ Commerce Commission, Fibre regulation emerging views: Technical Paper, May 2019, paragraphs 552 and 553.

3.1129.3 Under-investment in regulated FFLAS is less likely to be 'hidden' allowing greater reliance on quality standards and enforcement.

Submissions on our emerging view were split

3.1130 Submissions were substantive and split on this issue. The main evidence we received was from an expert report to Chorus by HoustonKemp.⁴⁷⁹ This was broadly supportive of an uplift but expressed scepticism of being able to quantify this and of elements of our previous quantifications. No extent of uplift was provided but they noted they could carry out further work on this.

3.1131 Chorus noted they consider that the benefits of an uplift outweigh the costs.⁴⁸⁰ They also note the fair bet uplift estimated by Oxera addresses the calculation of an uplift.⁴⁸¹ Enable and Ultrafast also submitted that a WACC uplift was required for asset stranding risk.⁴⁸² We address asset stranding separately in the next chapter.

3.1132 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.⁴⁸³

3.1133 Several investors submitted a 67th percentile was appropriate to incentivise maintenance and capacity upgrades and for reasons of regulatory consistency and predictability towards investors.⁴⁸⁴

3.1134 Other parties agreed with the emerging views paper that no uplift for asymmetric costs was warranted or noted factors which may limit concerns about under-investment.⁴⁸⁵

⁴⁷⁹ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019).

⁴⁸⁰ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraph 166.2

⁴⁸¹ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraphs 235-240

⁴⁸² Enable Networks and Ultrafast Fibre "Submission on NZCC fibre regulation emerging views: Technical paper" (16 July 2019), paragraph 5.6.

⁴⁸³ Electricity Networks Association "Fibre IMs: emerging views" (16 July 2019), paragraph 13-20

⁴⁸⁴ 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, Paradise 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)

⁴⁸⁵ 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.

Costs to end-users from an uplift for regulated FFLAS compared to other sectors we regulate

3.1135 An uplift to revenue through the WACC is expensive for end-users because we are trying to prevent disincentivising incremental investment (s 162(a) of the Act) through an increase in expected return across all investment.

3.1136 HoustonKemp have 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.⁴⁸⁶ From a welfare perspective, we consider that:

3.1136.1 Despite the potential for a prescribed maximum price for anchor services,⁴⁸⁷ 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.

3.1136.2 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 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.

3.1136.3 It may be that the amounts are not recoverable over time, despite losses being carried forward, because the revenue cannot be raised from end-users with or without the uplift and in this situation the uplift serves no purpose.

3.1136.4 Consequently, we do not believe that this consideration has a material bearing on our considerations.

3.1137 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.⁴⁸⁸

⁴⁸⁶ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 27.

⁴⁸⁷ Section 198(2)(d).

⁴⁸⁸ Trustpower "Trustpower's cross submission on fibre regulation emerging views - Cost of capital and risk " (9 August 2019), page 3.

3.1138 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.

The role of a WACC uplift differs across categories of investment

3.1139 Given the cost to end-users from an uplift is certain and substantive, 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.

3.1140 There are different considerations across different categories of investment concerning the risk and cost of under-investment to end-users. Hence, we examine the broad categories of growth in connections, innovation and quality.

Investment to meet growth in demand in connections

3.1141 We recognise that expanding the network can be particularly beneficial to end-users who would not otherwise have access to regulated FFLAS. However, 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.

3.1142 HoustonKemp have noted that approximately [] [COI] relates to growth. This seems to be both growth in capacity to meet demand and growth in network footprint.⁴⁸⁹ Chorus have also noted that expanding the network may offer significant benefits to consumers.⁴⁹⁰ HoustonKemp have noted there are adjacent areas to the fibre network currently served by VDSL2 where rollout of fibre will be delayed by us under-estimating the WACC.⁴⁹¹

3.1143 We agree that the benefits to end-users from investment to meet demand growth are potentially large because there would be a significant welfare loss if demand for new connections went unmet. We note 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).

⁴⁸⁹ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 13

⁴⁹⁰ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraphs 196 to 201.

⁴⁹¹ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 26.

3.1144 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:

3.1144.1 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))⁴⁹² 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.

3.1144.2 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).⁴⁹³

3.1145 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 more targeted tools are potentially available to provide incremental volume incentives which provide additional return directly linked to increased volumes. We discuss this further from paragraph 3.1206.

Investment in innovation

3.1146 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 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.

3.1147 HoustonKemp and Chorus⁴⁹⁴ have highlighted innovation as one of the costs of under-estimating the cost of capital. Little evidence has been presented on this topic.

⁴⁹² Media Release, Hon Kris Faafoi, 27 August 2019.

⁴⁹³ For example, see, UBS, Chorus: RABa-daba-doo; Upgrade to Buy, February 2019

⁴⁹⁴ For example, see Chorus, Submission in response to the Commerce Commission's fibre regulation emerging views, July 2019, paragraph 177.1.

- 3.1148 Oxera's 2015/16 analysis for us as part of the FPP process emphasised the potential for bringing forward deployment of new technologies in time.⁴⁹⁵ 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 built to recognised international technical standards (e.g. GPON ITU-T G.984 et al), with Crown Fibre oversight.⁴⁹⁶
- 3.1149 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,⁴⁹⁷ allow for technology investments to occur incrementally and for the underlying optical distribution network (**ODN**) to be substantially reused. The reuse 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.⁴⁹⁸ 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.⁴⁹⁹
- 3.1150 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 over time."⁵⁰⁰ 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.⁵⁰¹
- 3.1151 GPON is one of the most deployed FTTH technologies worldwide⁵⁰² 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 subdued.

⁴⁹⁵ Oxera, "Is a WACC uplift appropriate for UCLL and UBA?" (June 2015).

⁴⁹⁶ Chorus UFB2 NIPA – Schedule 3 (design and Build) – Execution Version, 7 Network specifications, page 27.

⁴⁹⁷ NG-PON2 Technology and Standards.

⁴⁹⁸ [PON roadmap\[invited\]](#), journal optical communications and networking, Volume 9 January 2017, page A73.

⁴⁹⁹ [GPON and TWDM-GPON in the context of the wholesale local access market](#). WIK Consulting, June 2016, page 13.

⁵⁰⁰ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 12.

⁵⁰¹ <https://company.chorus.co.nz/chorus-supercharges-new-zealands-broadband-10gbps-trial>

⁵⁰² WIK-Consult, "In response to the Commerce Commission's Fibre regulation emerging views: Technical Paper" July 2019, page 11.

3.1152 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 are incremental.

3.1153 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.

3.1154 More importantly, innovation is driven by the prospect of earning additional rents or protecting existing rents from competition eroding these.⁵⁰³ 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.⁵⁰⁴

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.

3.1155 Under PQ, innovation which reduces costs is naturally rewarded under a PQ path through incremental profits. 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).

3.1156 On a qualitative basis – the case for significant 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.

3.1157 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.

⁵⁰³ 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

⁵⁰⁴ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1474]

3.1158 During the FPP we also examined the links between a WACC uplift and innovation.⁵⁰⁵ 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.

3.1159 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 suggest that any future innovative service is less likely to be truly substantially different and offer significant benefits to end-users above and beyond what is already currently available.

Investment in reliability and quality

3.1160 In our emerging views paper, we previously noted that reliability was less of a concern for regulated FFLAS given:

3.1160.1 Regulated FFLAS are new networks;

3.1160.2 Alternative technologies are likely to mitigate the costs; and

3.1160.3 Under-investment in regulated FFLAS is less likely to be 'hidden' allowing greater reliance on quality standards and enforcement.

3.1161 This was an issue we received substantive submissions and cross-submissions on, and we have carefully considered the issues raised. It was also the issue where comparisons were drawn with our approach to regulating energy networks under Part 4.

⁵⁰⁵ Commerce Commission, Cost of capital for the UCLL and UBA pricing reviews, Final decision, December 2015, paragraphs 272 to 280.

3.1162 We placed reliance on the newness of the regulated FFLAS networks in our emerging views paper given this implies a network less likely to require substantive investment to maintain regulated FFLAS, is already provided to a high-level of quality and consequential further investment is likely to be relatively small and the likelihood of under-investment leading to substantive costs to end-users also being relatively small.

3.1162.1 Chorus' submission raised reliability as being an ongoing concern of under-investment.⁵⁰⁶ Chorus submitted that "*The Commission incorrectly assumes our fibre network is new and already providing significant quality of service to consumers...*"⁵⁰⁷ They emphasised the need for ongoing investment and that the network has reused old assets, and some of the build has proved unsatisfactory requiring further investment.⁵⁰⁸

3.1162.2 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.⁵⁰⁹

3.1162.3 The HoustonKemp report contained a table of fibre outage scenarios. The worst outcome appears to result from a
[

][COI].⁵¹⁰

⁵⁰⁶ For example, see Chorus submission paragraph 177.1.

⁵⁰⁷ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraph 179.

⁵⁰⁸ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraph 179.4.

⁵⁰⁹ 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.

⁵¹⁰ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 19 -20.

3.1163 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.*"⁵¹¹

3.1163.1 Enable and Ultrafast have drawn 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.⁵¹² In particular they note the continued growth in data usage at approximately 30% compound annual growth rate and the dependency of critical services on regulated FFLAS.

3.1163.2 Link Economics Limited (**Link Economics**) does 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.⁵¹³

3.1164 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 in the previous section) 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.⁵¹⁴ There appears to be no parallel to the costs to end-users from large-scale power outages, in regulated FFLAS.

⁵¹¹ 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>

⁵¹² Enable and Ultrafast "Second cross-submission on NZCC Fibre Regulation Emerging Views: Technical Paper" August 2019, paragraph 5.4.

⁵¹³ Link Economics "Report on the Commerce Commission's Emerging Views on Fibre Regulation" July 2019, page 9.

⁵¹⁴ Commerce Commission, Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper, October 2014.

3.1165 The consideration for a WACC uplift for regulated FFLAS and under Part 4 are separate considerations, 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.

3.1166 Where quality gradually and visibility 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 more money whether or not quality improves, stays the same or degrades and provides incremental profit across the entire RAB, not just the investment which would address the concern.

3.1166.1 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.

3.1166.2 HoustonKemp's report has, among other factors, drawn attention to the current level of resilience in route diversity.

[]
They also have provided figures on outages
[]

][COI]⁵¹⁵

][COI].⁵¹⁶

3.1166.3 HoustonKemp's report further notes under-investment will be hidden for periodic software upgrades and deployment of new generation equipment. They note that this may improve efficiency, performance or lower costs. Chorus also submits that reliability concerns may be hidden and support the report from HoustonKemp.⁵¹⁷ 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 is now approaching end of life and without replacement they anticipate increasing fault rates.⁵¹⁸

⁵¹⁵ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 15.

⁵¹⁶ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 15

⁵¹⁷ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraphs 193 to 195.

⁵¹⁸ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 16

3.1166.4 Vodafone has submitted that resiliency is not hidden and is negotiated between LFCs and access seekers and is measurable.⁵¹⁹

3.1167 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.

3.1168 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:⁵²⁰

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.

3.1169 The HoustonKemp report further noted that resilience comprises []**[COI]** of planned investment spend.⁵²¹ Even if that does represent a significant under-spend against what is needed, it suggests a WACC uplift is an expensive way to mitigate under-investment concerns here.

⁵¹⁹ Vodafone "New regulatory framework for fibre: Cross-Submission on Fibre Regulation Emerging Views - Cost of Capital" (9 August 2019), page 23.

⁵²⁰ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 19.

⁵²¹ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 13

3.1170 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.

3.1170.1 HoustonKemp have submitted that mobile services are not closely substitutable for regulated FFLAS and are dependent on regulated FFLAS to function.⁵²² 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.⁵²³

3.1170.2 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.⁵²⁴

3.1171 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 replicate the regulated FFLAS network, rather that it can mitigate the cost of outages because some alternative services may be available.

3.1172 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.⁵²⁵

3.1173 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.

⁵²² Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), section 4.2.2

⁵²³ 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

⁵²⁴ Spark "Fibre regulation emerging views: WACC - Cross-submission" (9 August 2019), paragraph 36 to 37.

⁵²⁵ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 25.

3.1174 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 a plausible possibility. This potentially reduces the probability of under-investment occurring.⁵²⁶

3.1175 Chorus have also offered evidence that home-based telecommunications have the highest incidence of problems in a MBIE survey.⁵²⁷ This appears to relate to all fixed line telecommunication services and does not distinguish regulated FFLAS or 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.

3.1176 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.

3.1177 Unlike energy distribution and transmission, telecommunications degradation is more likely to be gradual. 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 from paragraph 3.1206. Furthermore, the greater potential for competition in regulated FFLAS takes some weight off the regulatory regime to address these issues.

⁵²⁶

[

][COI]

⁵²⁷ 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.

3.1178 Overall, we consider 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 be give, to the purposes of s 166. However, we go on to examine the quantitative evidence before us and whether that impacts our view.

Quantification of the case for an above mid-point WACC

Why we examine quantitative evidence

3.1179 When we have previously considered this question in other sectors, we have tried to quantify the potential asymmetry in costs, given the evidence available.

3.1180 HoustonKemp's report expressed the view that:⁵²⁸

...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.

3.1181 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.

The loss analysis model we prefer for quantification

3.1182 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 propose as being most useful is one developed for us by Oxera and is based on the loss analysis approach.

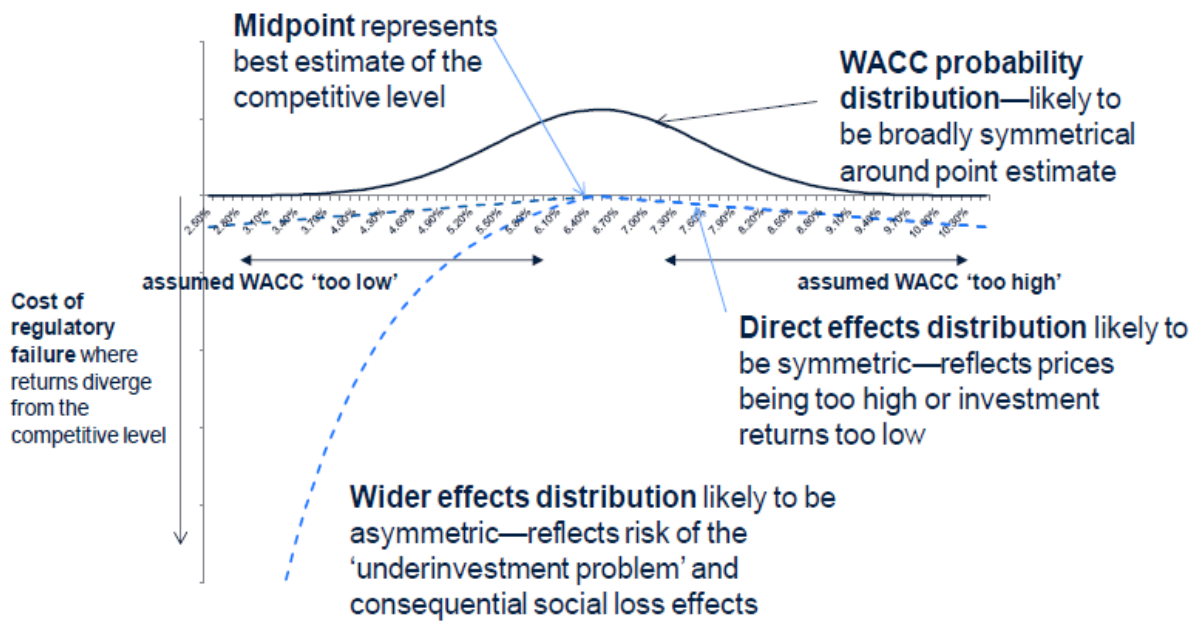
3.1183 Oxera's general approach is to empirically estimate the expected losses to end-users from over- and under-estimating the true cost of capital for various percentiles of the WACC distribution, on an annualised basis.

3.1184 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.⁵²⁹ Oxera's framework is illustrated in **Figure 3.6** below.

⁵²⁸ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 31.

⁵²⁹ Oxera "Input methodologies, Review of the '75th percentile' approach" (Report Prepared for New Zealand Commerce Commission, 23 June 2014), page 66.

Figure 3.6: Illustration of Oxera's framework for the WACC percentile



Source: Oxera⁵³⁰

3.1185 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.⁵³¹

3.1186 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 fundamental uncertainty regarding several key relationships which influence the appropriate WACC percentile. We recognise the model still has weaknesses.

3.1186.1 It does not incorporate the possible effect of over-investment resulting from a higher WACC percentile.

3.1186.2 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.

⁵³⁰ Oxera "Input methodologies, Review of the '75th percentile' approach" (Report Prepared for New Zealand Commerce Commission, 23 June 2014), page 2.

⁵³¹ 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.

3.1186.3 The model was developed to primarily focus on reliability investments.

3.1187 Oxera developed a separate model to investigate the potential benefits to end-users resulting from 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.⁵³² For the reasons laid out in paragraphs 3.1146 to 3.1159, we consider such 'acceleration effects' are less likely to be material under the considerations for regulated FFLAS and consequently we do not consider this model further.

Use of consumer or total welfare when quantifying

3.1188 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.

3.1188.1 A total welfare standard is consistent with an objective of maximising economic efficiency benefits for both consumers and producers,⁵³³ where any distributional benefits (or costs) associated with transfers of wealth between consumers and producers due to price changes are ignored.

3.1188.2 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.

⁵³² 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.

⁵³³ 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.

- 3.1189 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’).⁵³⁴ In such static economic models, a total welfare 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.
- 3.1190 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.
- 3.1191 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.
- 3.1192 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.

⁵³⁴ 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 demand diagrams, producer surplus is typically represented by the area above the supply curve and below the price paid.

3.1193 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.

Why we consider there needs to be a substantive mis-estimation to trigger under-investment

3.1194 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.

3.1195 The original advice from Oxera stated.⁵³⁵

“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—i.e. 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.”

3.1196 The report from HoustonKemp for Chorus has challenged this practice.⁵³⁶

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’.

⁵³⁵ Oxera, Input Methodologies: Review of the ‘75th Percentile’ approach, June 2014, Box 6.1

⁵³⁶ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 34.

3.1197 Our draft 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.

3.1197.1 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 (i.e. steady investment).

3.1197.2 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 lead investors to assume the regulator has mis-estimated the WACC, provided an insufficient return and consequently reduce investment.

3.1197.3 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.

3.1197.4 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 occurring. We consider that investors would be highly aware of these, as we discuss in the asymmetric risk chapter, investment analysts and credit rating agencies clearly are.

3.1198 We agree with HoustonKemp that there is little evidence underpinning the quantum of this.⁵³⁷ The issue was also recognised by Ingo Vogelsang (see paragraph 3.1098) and we have always recognised this is an area of fundamental 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 fundamental 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.

⁵³⁷ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 33.

3.1199 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 propose applying a percentile above the mid-point in determining the WACC to apply to regulated FFLAS.

3.1200 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.

Our proposed view of the quantitative evidence in assessing a WACC above the mid-point estimate

3.1201 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 Pty Ltd (**L1 Capital**) have referred to a Sapere report⁵³⁸ estimating the overall benefits of UFB to be in the region of \$32.8 billion over 20 years.

3.1201.1 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.

3.1201.2 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 HoustonKemp⁵³⁹ 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.

3.1201.3 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].⁵⁴⁰

3.1201.4 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.

⁵³⁸ Sapere, Estimating the wider socio-economic impacts of ultra fast broadband for New Zealand, August 2017 (A report prepared for Chorus). We note that the \$32.8 billion figure is referred to by Sapere but came from an Alcatel Lucent 2012 study.

⁵³⁹ 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.

⁵⁴⁰ This is a simplification of the required calculation, which balances the incremental change in probability combined with the estimated costs of underinvestment end-users avoid to the incremental change in cost to end-users through a higher WACC.

3.1201.5 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 RAB⁵⁴¹ 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.⁵⁴²

3.1202 We have run our uplift loss analysis model in reverse to test what would 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 3.13: 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 required to trigger under-investment	100bps gap required to trigger under-investment
\$3 billion	149	200
\$4 billion	199	267
\$5 billion	248	333
\$6 billion	298	400

Note to table: These costs are non-probability adjusted

3.1203 As the table illustrates, the estimates of benefits we have seen are of an order of magnitude lower than those indicated through the model. 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

3.1204 Trustpower's cross-submission did not support a WACC uplift but also submitted that if one is provided it should not be applied to the determination of the financial losses, required under s 177(2) of the Act. We note this is akin to a split cost of capital system.

⁵⁴¹ The RAB is yet to be determined as such these figures are purely illustrative.

⁵⁴² These basis point figures will depend on our intended WACC determination and are provided to give a sense of scale.

3.1205 Given our proposal to not apply an uplift, we do not need to resolve this issue at this time.

There are tools other than a WACC uplift that can address under-investment concerns

3.1206 Spark's cross-submission noted that an uplift is very expensive as it applies to sunk as well as new investment.⁵⁴³ They noted that alternative tools such as quality incentives and unbundling is a better tool to mitigate under-investment. Link Economics also highlighted quality incentives as a means to mitigate under-investment risk.⁵⁴⁴

3.1207 This was also an issue highlighted by our expert panel.⁵⁴⁵

...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.

3.1208 We agree that more targeted tools are potentially available. At this stage we do not consider that such tools are currently 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.

3.1208.1 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 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. We consider that the declaration of a point-to-multipoint layer 1 services supplied to end-users' premises or building as an unbundled fibre service may also be a tool to enhance quality.⁵⁴⁶

⁵⁴³ Spark, Fibre regulation emerging views: WACC Cross-submission, August 2019, page 21

⁵⁴⁴ Link Economics, Report on the Commerce Commission's Emerging Views on Fibre Regulation, page 9.

⁵⁴⁵ Martin Cave & Ingo Vogelsang, Financial capital maintenance and its role in fibre regulation in New Zealand, May 21, 2019, paragraph 4.4.

⁵⁴⁶ 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.

3.1208.2 If concerns relate to connecting end-users, for example infill, we have proposed including in the Chorus capex IM an expenditure category – connection capex – which can be adjusted mid-period to cater for unanticipated growth in this type of expenditure. We could also 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.

3.1208.3 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).

3.1209 Enable and Ultrafast have submitted that quality standards may not provide sufficient protection particularly while quality regulation is being developed.⁵⁴⁷ 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.⁵⁴⁸

3.1210 Overall, we propose not introducing such schemes now although that is not a decision necessarily required to set the IM, rather we note we have alternative, and, more targeted, tools available, if these potential issues prove to be problems.

3.1211 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.⁵⁴⁹

We are very surprised that the Commission would suggest that it can use the threat of penalties to coerce investment, as a means for compensating for a WACC that Chorus considers too low.

⁵⁴⁷ See Enable and Ultrafast “Second cross-submission on NZCC fibre regulation emerging views: technical paper” (August 2019), paragraph 5.8.

⁵⁴⁸ 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.

⁵⁴⁹ 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.

3.1212 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.⁵⁵⁰ We consider that the mid-point of the WACC best gives effect to the s 166(2) purposes by striking an appropriate balance 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

3.1213 Several investors and the ENA considered not providing a WACC uplift may harm predictability.⁵⁵¹

3.1214 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 can be long lived.

3.1215 However, the initial 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 investor expectations from the regime in other sectors.

3.1216 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.⁵⁵² That decision would not preclude us from reaching a different decision here if we consider that granting a WACC uplift would best give, or is likely to best give, effect to the s 166(2) purposes.

Relevance of international comparators

3.1217 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,⁵⁵³

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.

⁵⁵⁰ 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.

⁵⁵¹ For example, see Paradise Investment Management "Fibre Emerging Views submission" (10 July 2019)

⁵⁵² Commerce Commission, Cost of capital for the UCLL and UBA pricing reviews, December 2015.

⁵⁵³ For example, Black Crane Capital comparing Netlink NBN and Singapore, Ubique Asset Management submission comparing Slovenia, Luxembourg, Denmark, Czech Republic, Belgium and the UK.

3.1218 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.

3.1219 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**). 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.⁵⁵⁴

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.

3.1220 HoustonKemp have provided a quote from a previous Chairman of the AER supporting the concept of asymmetry of economic costs.⁵⁵⁵ 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.⁵⁵⁶

3.1221 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 noted⁵⁵⁷

"...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."

⁵⁵⁴ 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.

⁵⁵⁵ Houston Kemp "WACC uplift - asymmetric consequences of under-investment - A report for Chorus" (15 July 2019), page 27.

⁵⁵⁶ AER, Rate of return instrument: Explanatory statement, December 2018, Section 13.5

⁵⁵⁷ Wright, Bruns, Mason, Pickford and Hewitt "Estimating the Cost of capital for implementation of prices controls by UK Regulators" (March 2018).

3.1222 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 the latest Ofgem 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.⁵⁵⁸

3.1223 Overall, given limited evidence has been provided other than noting the size of WACC’s set, we consider that such comparisons offer little evidence in support of or against a WACC uplift in the context of this decision.

Our draft decision regarding the appropriate WACC percentile for PQ regulation

3.1224 Our draft 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).

3.1225 We do not propose applying an uplift to reflect 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.

3.1226 Consequently, we have not needed to consider what percentile other than the mid-point is appropriate.

Our draft decision regarding the appropriate WACC percentile for ID regulation

3.1227 We also need to decide whether an uplift applies to ID WACC. We have several options:

3.1227.1 One, no uplift is required for ID and we publish the mid-point

3.1227.2 Two, we publish the mid-point and the range from the 25th percentile to the 75th percentile.⁵⁵⁹

3.1227.3 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.⁵⁶⁰

⁵⁵⁸ Ofgem, RIIO-2 Sector Specific Methodology Decision – Finance, 24 May 2019.

⁵⁵⁹ We note that this is our approach for suppliers of electricity distribution services except from PQ regulation under s 54G(2) of the Commerce Act 1986.

⁵⁶⁰ 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)

- 3.1228 Enable and Ultrafast submitted that an ID WACC will affect their incentives to invest and have submitted the 67th percentile should be adopted.⁵⁶¹
- 3.1229 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 a higher uplift for the purposes of ID regulation.
- 3.1230 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 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.
- 3.1231 Our draft 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:
- 3.1231.1 If we determine a specific percentile, the upper-bound of such a range raises the danger that this is 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.⁵⁶² 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.
 - 3.1231.2 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.
 - 3.1231.3 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.

⁵⁶¹ Enable and Ultrafast, Second cross-submission on NZCC Fibre Regulation Emerging Views: Technical Paper, August 2019, paragraphs 5.6 to 5.7.

⁵⁶² Commerce Commission, Input Methodologies review decisions: Topic paper 6: WACC percentile for airports, December 2016, paragraph 26.

3.1232 We note that, inherent to ID regulation, 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 draft decisions on our intended published (but not binding) WACC determinations for ID.

Reasonableness checks

Purpose of this section

3.1233 This section discusses whether our WACC estimate for regulated providers, based on the draft decisions set out in this paper and compared with a range of comparative information, is a reasonable estimate of the cost of capital.

3.1234 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.

3.1235 The rest of this section:

- 3.1235.1 explains why we do not propose specifying these reasonableness checks as part of the cost of capital IM;
- 3.1235.2 explains our approach to undertaking reasonableness checks of our WACC estimates, and the adjustments we have made to help make alternative WACC estimates more comparable to our estimates;
- 3.1235.3 summarises why we consider our WACC estimates for regulated FFLAS are likely to be reasonable based on the information assessed;
- 3.1235.4 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

3.1236 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:

- 3.1236.1 the weight that would be accorded to each reasonableness test;
- 3.1236.2 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

- 3.1236.3 the degree of any resulting adjustment from the reasonableness tests. 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.

Approach to undertaking reasonableness checks of our WACC estimates

3.1237 This section explains the approach we have used when undertaking reasonableness checks of our WACC estimates, including:

- 3.1237.1 the publicly available comparative information we have considered;
- 3.1237.2 the weight placed on WACC estimates from different sources; and
- 3.1237.3 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

3.1238 When undertaking our reasonableness checks, we have used publicly available information on:

- 3.1238.1 the current New Zealand post-tax risk-free rate and the post-tax cost of corporate debt;
- 3.1238.2 historic and forecast estimates of the returns achieved on New Zealand investments of average risk;
- 3.1238.3 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
- 3.1238.4 estimates of the post-tax WACC from other regulatory contexts, particularly Australia and the United Kingdom.

3.1239 Our WACC estimates for regulated FFLAS, as at 1 September 2019, are compared to the publicly available information listed above.⁵⁶³ Our WACC estimates are calculated based on the draft cost of capital decisions set out in this paper. If our draft decision produces reasonable WACC estimates as at 1 September 2019, we consider they will also produce reasonable estimates at other dates since we propose that the risk-free rate will be linked to prevailing market rates.

⁵⁶³ We have used a risk-free rate estimated as at 1 September 2019.

3.1240 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

3.1241 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.

3.1241.1 *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).⁵⁶⁴

3.1241.2 *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.

3.1241.3 *Overseas estimates of the regulated cost of capital:* Our estimates are compared with cost of capital estimates from overseas regulatory decisions (primarily from Australia and the UK) for fibre services provided by the NBN and decisions by OfCom.

3.1242 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".⁵⁶⁵

⁵⁶⁴ 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.

⁵⁶⁵ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1213].

We have normalised for differences in risk-free rates

- 3.1243 We have normalised the comparator WACC estimates for differences in risk-free rates.⁵⁶⁶ 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.
- 3.1244 We have proposed using prevailing interest rates when determining the risk-free rate.⁵⁶⁷ In contrast, some other analysts and regulatory authorities use long-term averages when estimating the risk-free rate.
- 3.1245 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.
- 3.1246 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%).⁵⁶⁸

Why we consider our WACC estimates are reasonable

- 3.1247 We consider that our WACC estimates are reasonable based on the comparative information we have assessed.
- 3.1248 Figure 3.7 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 3.1251. In particular:
- 3.1248.1 current New Zealand post-tax risk-free rates and post-tax cost of corporate debt;
 - 3.1248.2 historic and forecast estimates of the returns achieved by New Zealand investors on an investment of average risk;
 - 3.1248.3 previous New Zealand regulatory decisions, and recent regulatory decisions in the UK and Australia;

⁵⁶⁶ 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.

⁵⁶⁷ 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.

⁵⁶⁸ 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.

3.1248.4 external estimates of the post-tax WACC for similar businesses, including estimates from PwC and New Zealand investment banks.

3.1249 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.

3.1250 We have assessed the reasonableness of 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 4.88% (as at 1 September 2019) is reasonable given it is:

3.1250.1 Below the forecast return on New Zealand investments of average risk (6.45%)⁵⁶⁹, but well above the post-tax returns on five-year government stock (0.72%) and five-year BBB+ bonds (1.87%). This is consistent with expectations regulated providers face lower risks than the average New Zealand firm, but greater risks relative to corporate bonds and government stock.

3.1251 Our estimates of the post-tax WACC for regulated FFLAS for application in setting PQ paths is reasonable since:

3.1251.1 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 30% gearing). This is reasonable because:

3.1251.1.1 regulated FFLAS have much lower exposure to risk than the average New Zealand firm. Accordingly, the cost of capital for these regulated providers can be expected to be well below the cost of capital for a New Zealand firm of average risk; and

3.1251.1.2 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);

3.1251.2 our estimate for regulated providers is close to Ofcom's Openreach estimates of the cost of capital for the corresponding regulated firms in the UK;

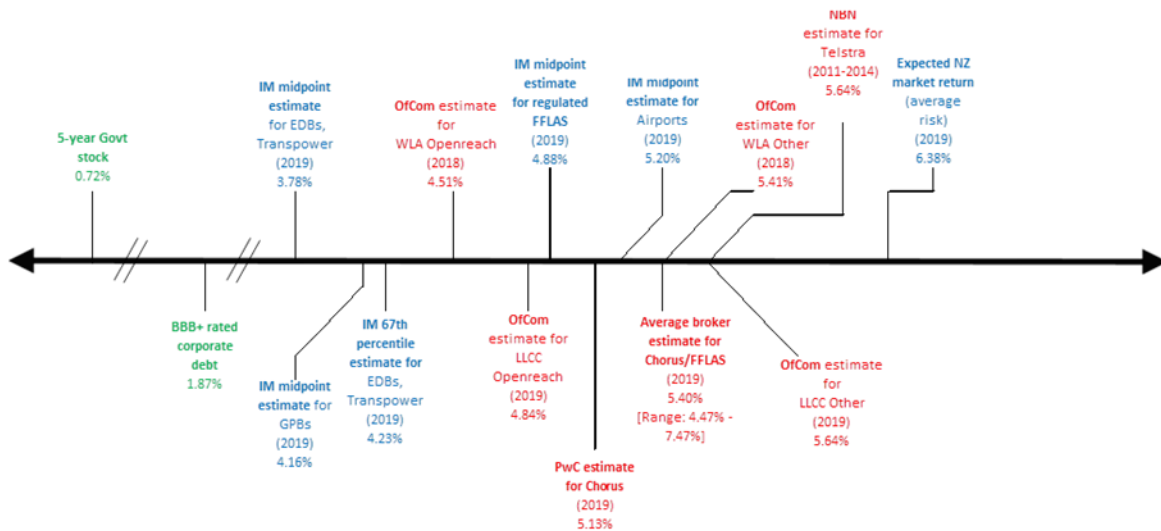
3.1251.3 our estimate for regulated FFLAS providers is above the cost of capital for EDBs and Transpower New Zealand Limited (**Transpower**) estimated by us in September 2019; and

⁵⁶⁹ The forecast return is calculated the same way as our WACC with the difference in equity beta, which is set to 1.

3.1251.4 our estimate is close to the one estimated in PwC’s most recent quarterly cost of capital report for Chorus.⁵⁷⁰

Figure 3.7: WACC reasonableness check⁵⁷¹

WACC reasonableness checks diagram for FFLAS

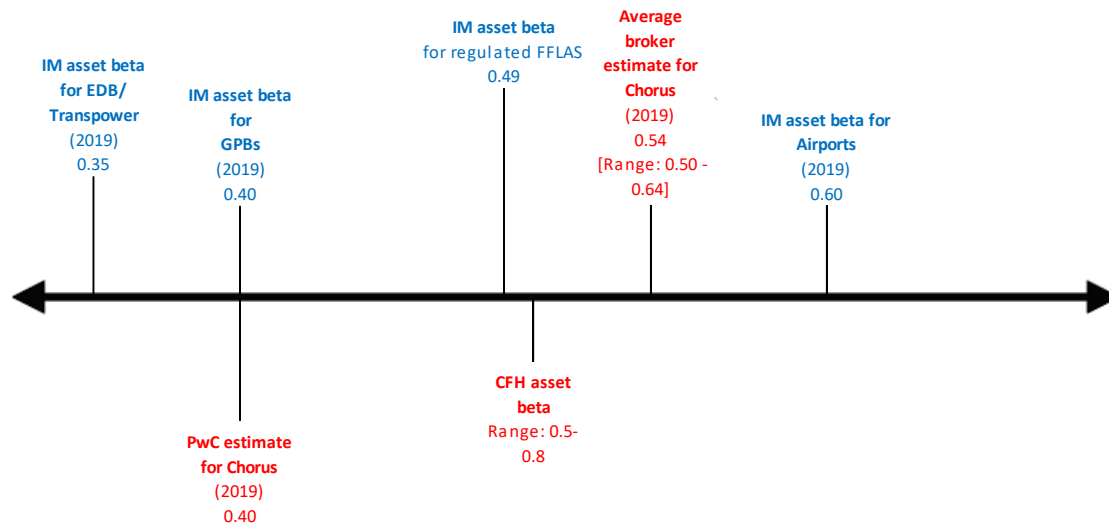


⁵⁷⁰ PricewaterhouseCoopers publishes estimates for around 105 listed New Zealand companies on a quarterly basis and is publicly available on the internet, the March 2019 report is the most recent available at the time this paper was finalised, available at <https://www.pwc.co.nz/pdfs/2019pdfs/cost-of-capital-report-1.pdf>.

⁵⁷¹ The IM midpoint for regulated FFLAS is indicative, using inputs for risk-free rate and debt premium from September 2019; expected NZ market return is equal to WACC with Equity beta set to 1.

Figure 3.8: Asset beta reasonableness check

Asset beta reasonableness checks diagram for FFLAS



Application of regulatory WACC

Purpose of this section

3.1252 The purpose of this section is to lay out how and when, in practice, we propose applying the cost of capital IMs in making regulatory WACC determinations.

Regulatory WACC timing

Summary of draft decision

3.1253 For regulatory WACC determinations in respect of PQ, our draft decision is to publish the regulatory WACC determination as of the first business day of the month seven months prior to the start of each regulatory period.

3.1254 For regulatory WACC determinations in respect of ID regulation our draft decision is to publish regulatory WACC determinations annually:

3.1254.1 within one month of the start of each disclosure year.

3.1254.2 these will be aligned with the company ID disclosure year (within one month).

Timing issues with regulatory WACC determinations

3.1255 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.

3.1256 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 draft decision is to specify the timing of determinations within the cost of capital IM.

3.1257 There are two types of regulatory WACC determinations.

3.1257.1 Those that apply to PQ paths, for which our draft decision is to estimate the regulatory WACC prior to the start of a PQ path.

3.1257.2 Those that are determined for the purposes of ID regulation, for which our draft decision is to estimate the regulatory WACC annually.

Timing of regulatory WACC determinations for PQ paths

3.1258 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.

3.1259 Our draft 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.

3.1260 We acknowledge that there is a potential extra re-pricing risk where we need to 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 propose 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.

3.1261 We recognise this is an area where submissions on practicality of approach are particularly valuable.

Timing of regulatory WACC determinations for ID regulation

3.1262 Our draft decision is that regulatory WACC determinations for ID regulation are determined annually to allow comparison to disclosure profitability information.

3.1263 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.

3.1264 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.

3.1265 Consequently, our draft decision is to publish within one month of the start of the disclosure year.

Our overall approach to the cost of capital for the purposes of ID regulation

3.1266 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.

3.1267 Our main draft decisions on estimating the WACC for the purposes of ID regulation are:

3.1267.1 matching the term of the risk-free rate to the regulatory period which applies for the purposes of PQ regulation;

3.1267.2 setting the debt premium using a five-year term, a BBB+ credit rating and allowing for a TCSD;

3.1267.3 setting an asset beta of 0.49 and a TAMRP of 7.5%;

3.1267.4 setting leverage at 31%; and

3.1267.5 publishing WACC determinations annually within one month of the start of each disclosure year, comprising of the mid-point estimate and standard error.

3.1268 Our benchmark WACC for the purposes of ID regulation is equivalent to the WACC likely to apply were regulatory providers subject only to ID regulation be subject to PQ regulation.

3.1269 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 ID and PQ regulation, regulated providers subject only to ID regulation are not restricted as to how and when they set prices of regulated FFLAS.

3.1270 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:

3.1270.1 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

3.1270.2 if a regulated provider's historic profits exceeded the benchmark WACC, this may not indicate excessive profitability where their efficiency has improved.

3.1271 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 draft 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 186.⁵⁷²

⁵⁷² 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

Introduction

3.1272 The purpose of this section is to consider the potential asymmetric risks facing regulated providers and our proposal for how this should be reflected in the IMs.

3.1273 Unlike other sections of this reason paper, 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 draft decision, the main impact is on the asset valuation IM.

Summary of draft decision

3.1274 For regulated providers subject to PQ supplying regulated FFLAS, our draft decision is that:

3.1274.1 Compensation for Type I asymmetric risks, such as earthquakes, can be provided *ex-post* as part of specifying the PQ paths.

3.1274.2 Compensation for Type II asymmetric risk associated with asset stranding should be provided by a combination of the following: retaining assets in the RAB, allowing for the possible shortening of asset lives (or alternative depreciation profiles) and a small *ex-ante* allowance.

3.1274.3 The *ex-ante* allowance:

3.1274.3.1 will be specified in the asset valuation IM.

3.1274.3.2 will be implemented through the cash flows at the time of setting a PQ path.

3.1274.3.3 relates to the whole RAB; including accumulated losses, but is not applied retrospectively.

3.1274.4 Consistent with the provision of an *ex-ante* allowance, regulated providers will bear some of the risk associated with asset stranding.

3.1275 For regulated providers subject to ID supplying regulated FFLAS, our draft decision is that no stranding allowance is required within the IMs.

Structure of this section

3.1276 The remainder of this section is split into the below points.

- 3.1276.1 Decision-making framework for asymmetric risks.
- 3.1276.2 General explanation of this topic.
- 3.1276.3 Rationale for our preferred approach.
- 3.1276.4 Why we consider asset stranding risks require compensation.
- 3.1276.5 Why we do not consider the Oxera Consulting LLP (**Oxera**) analysis is relevant for this decision.
- 3.1276.6 What we consider are the potential solutions for compensating for asset stranding.
- 3.1276.7 Why we prefer providing some ex-ante compensation.
- 3.1276.8 How we calculated the amount of compensation which best gives effect to the purpose statement.
- 3.1276.9 How the ex-ante allowance should be updated over time.
 - 3.1276.9.1 How this affects the IMs.
 - 3.1276.9.2 Why we believe no specific provision is required within the IMs for the purposes of ID regulation to deal with asymmetric risk.
- 3.1276.10 The other options we considered.

Decision-making framework for asymmetric risks

Matters to be considered by Commission: Section 166

- 3.1277 Under s 166(2) of the Act, we must make decisions that we consider best give, or are likely to best give, effect:
- 3.1277.1 to the purpose in s 162 of the Act; and
 - 3.1277.2 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

3.1278 We consider that the most relevant outcomes of the s 162 purpose for our draft decisions on asymmetric risks are:

3.1278.1 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 undertake efficient investment.

3.1278.2 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.

3.1279 In reaching our draft 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)

3.1280 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 proposing these recommended draft decisions for asymmetric risk. As a result of 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 this recommended decision in paragraph 3.1350.2.

3.1281 Where regulated providers are immunised from the financial effects of competition, this may affect their competitive choices and thereby effect the promotion of competition.

Economic principles

3.1282 The issues surrounding asymmetric risks also are highly relevant to two of our economics principles:

3.1282.1 **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.

3.1282.2 **Allocation of risk**, asset stranding risk and the method by which it is addressed may re-allocate this risk either to end-users or regulated providers.

3.1283 In choosing whether and how to compensate for asset stranding risk, we are directly affecting the expectations of a regulated fibre service provider's *ex-ante* ability to achieve FCM and the related concept of *ex-ante* NPV=0. We discuss this further throughout this chapter.

3.1284 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

3.1285 The issue of asymmetric risk affects the following:

- 3.1285.1 Cost of capital IM: To the extent that asset stranding risk is systematic this should be compensated through the asset beta.
- 3.1285.2 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
- 3.1285.3 Rules and processes IM: Spark has drawn attention to the design of the wash-up mechanism and how this compensates for risks.⁵⁷³ We note that the detail of how a wash-up will apply is unlikely to change our draft decisions with respect to asset stranding risk. It is the existence of a wash-up rather than the mechanics which matter most.

General explanation of asymmetric risk

3.1286 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'. For example, in competitive markets existing firms may be exposed to the risk of new entry that would erode upside returns when the market is profitable. However, when the market is unprofitable entrants are unlikely to arrive so incumbent firms are left to entirely bear any losses. This type of cost is specific to the individual supplier and is not compensated for in the standard cost of capital estimations. In workably competitive markets, firms will try to compensate for this risk by increasing prices where they can and thereby keep an expectation of symmetric returns

3.1287 In monopolised markets regulation can cap potential profits without providing commensurate insulation from downside risk. Firms may also be exposed to stranding risk (e.g. through technical obsolescence, unfavourable demand shocks), and large catastrophic events such as natural disasters. These risks are potentially asymmetric in the absence of no compensating upside.

⁵⁷³ Spark, Regulatory processes and rules: topic paper submission, September 2019, paragraphs 18 to 19.

3.1288 For clarity it is useful to distinguish two categories of asymmetric risk:

3.1288.1 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. 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.

3.1288.2 Type II risks are risks that derive from events such as the threat of competitive entry or expansion. That is, there may be a cap 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 operational costs, or through negative demand shocks.

3.1289 Our emerging view was that we did not consider any further 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.⁵⁷⁴ We have received no material evidence on this topic since our emerging view.

3.1290 Our emerging view on Type II risks of asset stranding was that this was potentially material and there are several options for how to deal with this.⁵⁷⁵ We received substantive submissions and cross-submissions on this issue. The characteristics of telecommunications markets explains why this issue may be more pronounced than for other sectors we regulate.

3.1291 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.⁵⁷⁶ This potential for competition combined with PQ regulation constraining the ability of firms to earn an above-normal profit in the short-run increases the likelihood that firms face asymmetric risks.

⁵⁷⁴ Commerce Commission “Fibre regulation emerging views: Technical paper” (21 May 2010), paragraph 550.2.

⁵⁷⁵ Commerce Commission “Fibre regulation emerging views: Technical paper” (21 May 2010), paragraph 550.3.

⁵⁷⁶ Telecommunications Act 2001, s 210(3).

Summary of submission on our emerging view on asset stranding risk

- 3.1292 Chorus, Enable and Ultrafast are supportive of an adjustment to recognise asset stranding risk.⁵⁷⁷ Chorus is 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.⁵⁷⁸
- 3.1293 Oxera (on behalf of Chorus) presents a ‘fair bet’ method to calculate an adjustment to the WACC.⁵⁷⁹ Oxera suggests 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.
- 3.1294 Investment analysts support recognition of asset stranding risk through an adjustment to the WACC.⁵⁸⁰
- 3.1295 Retailers were sceptical on the need for any additional allowance for asset stranding. Trustpower Limited (**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 fibre service 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 Limited (**Link Economics**) for Trustpower noted that the government subsidy will give the fibre 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.
- 3.1296 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.⁵⁸¹

⁵⁷⁷ Enable Networks and Ultrafast Fibre, Submission on NZCC Fibre Regulation Emerging Views: Technical Paper, July 2019, paragraph 5.6.

⁵⁷⁸ Chorus, “Submission in response to the Commerce Commission’s fibre regulation emerging views dated 21 May 2019” (July 2019), paragraph 50.2

⁵⁷⁹ 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.

⁵⁸⁰ Black Crane Investment Management Limited, Investor Mutual Ltd, L1 Capital Pty Ltd.

⁵⁸¹ Electricity Networks Association, Fibre IMs: emerging views, submission to the Commerce Commission, 16 July 2019.

Rationale for preferred approach

Our draft decision is that no IM is required for Type I asymmetric risks

3.1297 For type I asymmetric risks, the risk is best addressed, if required, by the ability to allow for the reconsideration of the PQ path following a catastrophic event.⁵⁸² Any destroyed assets are compensated for under our draft determinations and 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.⁵⁸³ This wash-up mechanism significantly mitigates the associated demand risk including as a result of a catastrophic event. No further evidence was provided on this topic in response to our emerging view and we have not found any other relevant considerations.

3.1298 Therefore, for the purposes of regulated providers subject to PQ relating to the supply of regulated FFLAS, our draft decision is to make no allowance within the IMs for Type I asymmetric risks but to address such risks through the price path which will be reflected in the rules and processes IM re-opener provisions.

3.1299 It follows that for the purposes of regulated providers subject to ID regulation related to the supply of regulated FFLAS, we consider that nothing is required within the IMs to deal with type I asymmetric risks.

Our draft decision is that some upfront compensation for Type II asymmetric risks associated with stranding risk within the IM is warranted for regulated providers subject to PQ regulation

3.1300 For type II asymmetric risk associated with asset stranding, our draft decision allows for stranding risk to be mitigated by allowing businesses to retain some stranded assets in the RAB, allowing firms to reduce asset lives or provide for an alternative depreciation path as well as by providing a small *ex-ante* allowance. This reflects:

3.1300.1 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 a normal profit. This would not best promote the outcome in s 162(a) or be to the overall benefit of end-users.

⁵⁸² We note the reopener provisions will be considered as part of the process and rules IM.

⁵⁸³ 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.

3.1300.2 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.

Our draft decision is that upfront compensation for Type II asymmetric risks within the IM is not required for regulated providers subject to ID regulation

3.1301 We recognise that asset stranding risk is material, and this may be true for regulated providers subject 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. At a later date we may require the public disclosure of such information if we consider that it would promote the purpose of ID regulation under s 186 of the Act. 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.⁵⁸⁴

3.1302 We consider that it is appropriate for ID regulation to give regulated providers greater freedom as to how they approach this type of issue rather than this being laid out in the IMs.

3.1303 Consequently, our draft 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 gives best effect to s 186 in allowing interested parties to analyse the information and reach conclusions as to how each ID regulated FFLAS provider is balancing s 162(a) and (d).

Why we consider material asset stranding risk requires compensation

3.1304 In order for compensation to be required for a risk it needs to be asymmetric and material. 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.

3.1305 We noted in our emerging views paper that asset stranding risk may require compensation.⁵⁸⁵

⁵⁸⁴ Telecommunications Act 2001, s 186.

⁵⁸⁵ Commerce Commission “Fibre regulation emerging views: Technical paper” (21 May 2010), paragraph 550.3.

The problem we are trying to fix

- 3.1306 Stranding risk is a business risk for Chorus and the other **LFCs**.⁵⁸⁶ 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 supply of regulated FFLAS, then the full amount invested in providing that regulated FFLAS may not be recoverable. In these circumstances, the value of the firm will reduce because the expected revenue from selling the regulated FFLAS will no longer be there.
- 3.1307 Stranding risk may not be a systematic risk because the risk can be managed by investors holding a diversified portfolio of assets. This means that if an investor is concerned about a regulated FFLAS becoming stranded, the investor can hedge against this risk by investing in a firm that has a competing technology, e.g. 5G. The CAPM assumes that investors act in this way, and therefore, the cost of equity that is derived from the CAPM does not compensate for non-systematic stranding risk. The main stranding risk here appears related to competition linked to technological change which is not normally considered systematic. However, to the extent some residual systematic asset stranding risk is present, as long as the firms in the sample set we use to calculate the asset beta also face stranding risk, we expect that to be captured in our estimate of the asset beta for regulated FFLAS. We note that the potential for, or actual competition and impact of technological change is common to the telecommunications industry.
- 3.1308 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 wash-up 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 are increased in the following regulatory period).⁵⁸⁷

⁵⁸⁶ As explained in **Chapter 2**, we expect that all of Chorus' FFLAS will be subject to both PQ and ID regulation and expect that all of the other LFC's FFLAS will be subject to ID regulation only.

⁵⁸⁷ 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.

3.1309 Stranding risk can affect the way a revenue cap functions. The problem arises where revenue is lower in one regulatory period and regulated providers subject to PQ regulation cannot generate sufficient revenue the following regulatory period, 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 promotes regulated providers having incentives to invest.

3.1310 We note that asset stranding risk from technological advances can 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.

3.1311 We recognise there are several features of this sector which suggests that asset stranding may be a material risk.

3.1311.1 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.

3.1311.2 The requirements for geographically consistent pricing⁵⁸⁸ and potential for a prescribed maximum price for anchor services⁵⁸⁹ may limit the ability for regulated providers subject to PQ to achieve the revenue cap than would otherwise be the case.

3.1312 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.⁵⁹⁰

What evidence we found that asset stranding risk is material for regulated FFLAS

3.1313 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.

⁵⁸⁸ Telecommunications Act 2001, s 201.

⁵⁸⁹ Telecommunications Act 2001, s 198(2)(d).

⁵⁹⁰ Martin Cave & Ingo Vogelsang, Financial capital maintenance and its role in fibre regulation in New Zealand, paragraph 3.11.

3.1314 There is some evidence that new technology (most notably 5G deployment) poses a risk to Chorus:

- 3.1314.1 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.⁵⁹¹
- 3.1314.2 S&P notes this as a risk in their assessments of the credit rating of Chorus.⁵⁹² So reportedly does Moodys.⁵⁹³
- 3.1314.3 The original de-merger prospectus noted the risk of end-users switching away from the fibre network.⁵⁹⁴
- 3.1314.4 Current levels of switching to fixed wireless services have been moderate but non-trivial. Over 165k lines are now provided through the fixed wireless service.⁵⁹⁵ 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.
- 3.1314.5 Oxera submitted evidence assessing how uptake affects the rate of return.⁵⁹⁶ [] [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.

3.1314.6 [

⁵⁹⁷] [COI]

⁵⁹¹ 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.

⁵⁹² S&P Global Ratings, Chorus, 31 May 2018.

⁵⁹³ 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.

⁵⁹⁴ 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

⁵⁹⁵ Commerce Commission, Annual Telecommunications Monitoring Report, 2018 Key Facts, December 2018.

⁵⁹⁶ This was based on answers to Select Committee questions.

⁵⁹⁷ [

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3.1315 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.⁵⁹⁸ The weight of evidence is more suggestive of the risk being significant than not.

3.1316 The submission from Trustpower,⁵⁹⁹ and supported by Vodafone New Zealand Limited,⁶⁰⁰ pointed to the prospect of apparently stranded fibre assets in the future being subsequently found to not be stranded with upgrades. 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.

3.1317 We accept the evidence base is not conclusive. Nonetheless we believe the evidence before us as, a whole, is more supportive of asset stranding being a material but modest risk for Chorus.

3.1318 Wlk submits that the original business plans (for LFCs) were predicated on 60% take-up by 2020 and close to 100 % take-up over time⁶⁰¹ and that fixed wireless substitution and deployment of VDSL2 by Chorus in the other LFC UFB areas may undermine this. 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.⁶⁰²

Furthermore[

⁶⁰³] [COI]

3.1319 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 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.

⁵⁹⁸ For example, see Forsyth Bar, 12 March 2019 and UBS 6 February 2019 and 13 June 2019 and SP Global, Chorus Ltd, May 2018

⁵⁹⁹ Trustpower, Trustpower Submission: Fibre Regulation Emerging Views, July 2019, paragraph 3.75

⁶⁰⁰ Vodafone, New regulatory framework for fibre: Cross-submission on Fibre Regulation Emerging Views – Cost of Capital, August 2019, pages 5 to 9.

⁶⁰¹ WIK-Consult, In response to the Commerce Commission's "Fibre regulation emerging views: Technical Paper" of 23 May 2019, July 2019, paragraph 55.

⁶⁰² 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.

⁶⁰³ []

3.1320 It is less clear the evidence is supportive of there being an asymmetric stranding risk for the other LFCs which requires an adjustment to the regime. Asset stranding is a risk with 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 fibre service providers subject to ID regulation is not directly capped. Given our overall draft decision that nothing is required within the IMs for regulated providers subject to ID regulation, which we explain in more depth later,⁶⁰⁴ 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.

Why we do not consider the Oxera analysis is relevant for this decision

3.1321 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 accesses the risks at the time investment was committed rather than current risks.

3.1322 Our draft decision is that Oxera’s fair bet approach is incompatible with the regime.

3.1322.1 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.⁶⁰⁵ Rather any revenue shortfall over this period would be borne by investors in the expectation of future revenues which would compensate for this.

3.1322.2 We could not have a wash-up mechanism associated with the revenue cap.⁶⁰⁶ Again, to the extent regulated providers could not achieve revenues up to the cap, that would be borne by investors.⁶⁰⁷

3.1322.3 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 where investment occurred at less than efficient cost, the cost should be pared back to the efficient level before entering the RAB.

⁶⁰⁴ Paragraphs 3.1403 to 3.1409.

⁶⁰⁵ 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.

⁶⁰⁶ As required under s 196 of the Act.

⁶⁰⁷ A similar point is made in Martin Cave & Ingo Vogelsang, Financial capital maintenance and its role in fibre regulation in New Zealand, May 2019, paragraph 1.13.

3.1323 In summary, the regulatory regime provides some significant caps to the downside which would need to be removed. 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.⁶⁰⁸

3.1324 It is also notable that much of the information used to estimate the ‘fair bet’ risk for Chorus [⁶⁰⁹] [COI]
[⁶¹⁰] [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
[⁶¹¹] [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.

3.1325 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

3.1326 they excluded investment in areas which received government subsidy.⁶¹² In particular, they noted:

“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.”⁶¹³ [Our emphasis]

⁶⁰⁸ 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.

⁶⁰⁹ []

⁶¹⁰ []

⁶¹¹ []

⁶¹²]
OfCom “WLA Market Review: Statement” (March 2018), paragraph A6.54

3.1327 We also note that regulation was clearly expected at the time of the investment. As such it would be factored into investors' expectations of future returns. Adjusting regulation to compensate investors for their *a priori* expectations, given this is part of their expectations, may not best promote the outcome in s 162(d) of regulated providers being limited in their ability to extract excessive profits.

3.1328 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.

What are the potential solutions for compensating for asset stranding risk

3.1329 Several submitters to our emerging view considered the stranding risk should be reflected in the WACC, either submitting it is already compensated for through our asset beta estimation,⁶¹⁴ or that the WACC should be increased to reflect higher asset stranding risk than the comparator set.⁶¹⁵ We do not consider that the main stranding risk here is a systematic risk.

3.1330 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.

3.1331 We can broadly split methods to address asset stranding into ex-post mechanisms, mitigation mechanisms and ex-ante mechanisms.

Ex-post Compensation: Keeping Assets in the RAB

3.1332 Keeping assets within the RAB whether they are stranded or not allows for the recoupment of the investment through charges to end-users over time. In effect, in the event of stranding, future end-users compensate regulated providers.

⁶¹⁴ For example, see Trustpower, Submission: Fibre Regulation Emerging Views, July 2019, paragraph 3.7.5

⁶¹⁵ For example, see Castalia, Rate of Return for Information Disclosure Profitability Monitoring of Local Fibre Companies, August 2019, page 4.

3.1333 The advantages of this are:

- 3.1333.1 It is straight forward, easy to implement and does not require difficult estimations.
- 3.1333.2 It reduces uncertainty within the regime.

3.1334 The disadvantages are:

- 3.1334.1 It cannot protect from economic 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.
- 3.1334.2 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 subsidising another set of end-users.⁶¹⁶ The efficiency impacts of this are muddled by the requirement for geographically consistent pricing.⁶¹⁷
- 3.1334.3 It allocates risks to end-users, but they may not always be best placed to deal with 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.

Shortening asset lives

3.1335 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 it is no longer material. This can be achieved through:

- 3.1335.1 Shortening asset lives (and therefore, shortening the depreciation profile).
- 3.1335.2 Changing the depreciation profile (and hence reducing the asset value subject to stranding risk).

⁶¹⁶ For example, see ENA, Fibre IMs: emerging views, July 2019, page 4 and Enable and Ultrafast cross-submission paragraphs 3.6 to 3.10

⁶¹⁷ Telecommunications Act 2001, s 201.

3.1335.3 Not indexing the RAB which acts similarly to adjusting the depreciation profile and while highlighted by submitters (ENA and Vector Limited⁶¹⁸), is a blunt option and subsumed by the depreciation profile.

3.1336 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.

3.1337 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.

Ex-ante mechanisms

3.1338 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.

3.1339 We propose adopting a discount rate method of calculating this. Either the allowance is part of the cash flows or can be implemented as an additional allowance for each PQ path.

3.1340 Of the submitters who support an adjustment for asset stranding risk, most support was for an ex-ante adjustment to the WACC.⁶¹⁹ Our view is that it should not form part of the WACC because this 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.

3.1341 The main advantages of this approach are that by providing clear upfront compensation, it can:

3.1341.1 Address the risk of price shocks to end-users if asset stranding comes to fruition. 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.

⁶¹⁸ ENA, Fibre IMs: emerging views, July 2019 and Vector, Submission to Commerce Commission on the Fibre Regulation Emerging Views Paper, July 2019.

⁶¹⁹ For example, Chorus, Enable and Ultrafast, L1 Capital, NorthPower Fibre

- 3.1341.2 Allocate 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.⁶²⁰ We note that Dr Lally (in Attachment H) considers consumers are better placed to bear this risk but recognises incentives for efficient investment do support an *ex-ante* allowance.
- 3.1341.3 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.⁶²¹

3.1342 The main disadvantages of adding an ex-ante allowance to revenue are:

- 3.1342.1 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).⁶²²
- 3.1342.2 The allowance is difficult to calculate,⁶²³ 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. We have appended previous advice from
- 3.1342.3 Dr Lally (see Attachment H) which articulates the disadvantages further.
- 3.1342.4 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.

⁶²⁰ 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

⁶²¹ 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.

⁶²² Shortening asset lives has a larger effect on unit prices end-users pay becomes 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.

⁶²³ Spark drew attention to this, cross-submission on WACC, paragraph 50.

Sharing mechanisms

3.1343 Simshauser⁶²⁴ 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. 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.

Why we prefer providing some ex-ante compensation

3.1344 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.

We consider that retaining all assets within the RAB will not be effective or best give, or be likely to best give effect to the purpose of Part 6 in s 162

3.1345 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 their expected life or which were inefficiently incurred can be identified. 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.

3.1346 Chorus has submitted this option should be retained alongside other options. The Chorus submission refers to certain classes of assets that should be retained in the RAB and noted such retention cannot be a complete solution.⁶²⁵ WIK also noted this option may not fully resolve the risk.⁶²⁶

3.1347 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 large discretion to exclude assets, this may not promote the outcome in s 162(a) of regulated providers having incentives to invest.

3.1348 Furthermore, the type of asset stranding we are potentially concerned with includes economic stranding. Here retaining assets in the RAB would not grant the ability to recover them where there are insufficient end-users to generate the revenue required.

⁶²⁴ See Simshauser, Monopoly regulation, discontinuity & stranded assets, *Energy Economics*, 66 (2017) 384-398

⁶²⁵ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019", (July 2019), paragraph 228

⁶²⁶ WIK-consult, In response to the Commerce Commission's "Fibre regulation emerging views: Technical Paper" of May 2019, paragraphs 61 and 62.

We also consider that we best give effect to the purposes in s 166 by excluding assets associated with deregulation

3.1349 Our draft decision is to exclude assets associated with deregulated areas, end-user types or services from the RAB.

3.1350 Our emerging view noted that in the event of deregulation, assets may be removed from the RAB.⁶²⁷ This was supported by our expert panel.⁶²⁸ 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 effects we think do not best give, or are unlikely to best give, effect to the purposes in s 166.

3.1350.1 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.

3.1350.2 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:

3.1350.2.1 promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services (s 166(2)(b)); or

3.1350.2.2 outcome in s 162(b) of regulated providers having incentives to improve efficiency.

We consider that there is a risk shortening asset lives will not be effective

3.1351 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.

⁶²⁷ Commerce Commission "Fibre regulation emerging views: Technical Paper", (May 2019) par 605.

⁶²⁸ Cave & Vogelsang "Financial capital maintenance and its role in fibre regulation in New Zealand", (May 2019), paragraph 2.26.

3.1352 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.

3.1353 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 cover the revenue cap, depreciation is 'recharged' forward.

3.1354 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.⁶²⁹

3.1355 [⁶³⁰] [COI] We understand that under GAAP they can use economic lifetimes of assets and they update these every year.

3.1356 We consider an approach that requires the regulated fibre service provider to submit justification for the depreciation method to adopt, including shortening asset lives in excess of GAAP rules, is appropriate.⁶³¹ This is because we are also proposing some additional *ex-ante* compensation and need to ensure broad consistency between the two forms of compensation.

3.1357 This would allow greater leeway to the process for accelerated depreciation we have applied to the EDBs.

3.1357.1 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.⁶³²

3.1357.2 We introduced this IM mechanism to address the risk that a network becomes economically stranded, rather than any risk of physical asset stranding.

⁶²⁹ Jarden, Chorus: Regulatory uncertainty to the fore again, 27 August 2019 [COI]

⁶³⁰ [

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⁶³¹ This process is discussed in more detail in the Asset Valuation section

⁶³² 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.

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 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).⁶³³

3.1358 Given 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 asset stranding risk for regulated FFLAS suppliers, we are left with providing some *ex-ante* allowance, given the circumstances specific to the regulated fibre sector. In respect of the advice from Dr Lally reproduced in Attachment H, 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.

We consider that allocating the risk to regulated providers will be to the benefit of end-users

3.1359 When we are considering 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.

3.1359.1 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,⁶³⁴ 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.

3.1359.2 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, 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.

⁶³³ 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.

⁶³⁴ Telecommunications Act 2001, s 201. Geographic consistent pricing implies cross-subsidisation may already occur.

3.1359.3 Finally, as we discuss in paragraph 3.1350.2 excluding deregulated assets from the RAB is likely to best give effect to s 166(2)(b). Ultimately, we consider that this is likely to best give effect to the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunication services.

Why we will not ring fence the ex-ante allowance with a special purpose account

3.1360 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.⁶³⁵ The RAB would be written down when the stranding risk occurs.

3.1361 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.

3.1362 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

3.1363 The *ex-ante* allowance is meant to compensate for the risk that revenues that can be achieved, for example in deregulated areas were 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.

3.1364 Deregulation does not, by itself, strand assets. Competition does not necessarily preclude earning revenue and a normal return, and as Link Economics report noted;⁶³⁶ these are partially subsidised assets which may earn a greater than normal return when not subject to regulation. However, competition which derives from technological change 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.

⁶³⁵ Commerce Commission, Fibre regulation emerging views: Technical Paper, May 2019, paragraphs 635 to 644.

⁶³⁶ Link Economics, Report on the Commerce Commission's Emerging Views on Fibre Regulation, July 2019, page 10.

We have addressed the asset stranding risk faced by investors prior to the IMs

3.1365 Comments on our emerging views paper, including from Chorus,⁶³⁷ have specifically drawn attention to the risk faced by investors over the period prior to the determination of the IMs. 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.

3.1366 In this respect we note that the approach to financial losses⁶³⁸ effectively neutralises these risks over the pre-implementation period. Any losses are included within the RAB in the post-implementation period. We can further note:

3.1366.1 To the extent, at the specification of the first PQ path, it becomes clear that economic stranding is already present, i.e. 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.

3.1366.2 In the alternative, it is the residual asset stranding risk (at the time we determine the IMs) which is relevant, which will be affected by the size of the RAB including financial losses, for which we are compensating.

3.1367 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.

3.1368 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. Here we note:

3.1368.1 We did not regulate any regulated providers over this period.

⁶³⁷ 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.

⁶³⁸ As required to be determined under Telecommunications Act 2001, s 177(2).

3.1368.2 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 has publicly stated that the risks of project over-runs were realised when communal costs were revised upwards in 2013.⁶³⁹

3.1369 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. Consequently, our draft 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.

The consequences of allocating this risk to regulated providers

3.1370 Where certain regulated FFLAS are deregulated under s 226, our draft 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.

3.1371 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 do not propose to adjust the RAB in this situation given:

3.1371.1 Reducing the RAB will have no 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. Consequently, we do not expect that this proposed decision will be inconsistent with the outcome in s 162(d) of regulated providers being limited in their ability to extract excessive profits.

3.1371.2 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.

⁶³⁹ Chorus, Implementation of the fibre access services regulatory framework, September 2019, slide 9. Available on Chorus website under investor news.

How we calculated the amount of compensation which best gives effect to the purpose of Part 6 in s 162

Estimating an ex-ante allowance requires judgement

3.1372 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.

We are aware of the risks of asymmetric information

3.1373 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.

3.1374 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 H).

3.1375 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 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 have estimated a range of between 5 to 40 basis points

3.1376 Base on the evidence before us, we estimate 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 have come to this draft decision through:

3.1376.1 Using a model developed by Dixit & Pindyck to assess the value of an annuity subject to asset stranding.⁶⁴⁰ 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.

3.1376.2 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.

3.1376.3 Reviewing the evidence before us at this time to form a judgement given these two techniques.

3.1377 Given the uncertainty in this exercise, we consider that this is best described as a range of likely results.

⁶⁴⁰ Dixit and Pindyck "Investment under Uncertainty" (1994), Princeton University Press, pages 200 to 207.

The framework of analysis we use to guide judgement

3.1378 In principle, to directly estimate the potential cost of the risk of asset stranding, 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.

3.1379 We have used the insights from Dixit and Pindyck to assist consideration of these issues.⁶⁴¹ This translate a judgement of 5% risk of asset stranding in T years to an increment to a discount rate.

3.1380 These insights allow us to see the potential impact of asset stranding risk as a discount rate, which is reproduced in **Table 3.14** below. More detailed explanation of how we derived this table is contained in Appendix I. 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).

Table 3.14: Potential impact of asset stranding as a discount rate

		Probability of Stranding									
		5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
% RAB which may be stranded	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

3.1381 **Table 3.14** 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.⁶⁴² 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.

⁶⁴¹ 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.

⁶⁴² 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 become excluded due to this, the

This estimate is based on the available evidence

3.1382 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 of the asset value over the next ten years while it is more realistically, lower. This provides a likely range of between 5 to 40 basis points.

3.1383 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). Evidence from some analysts suggest the main long-term risk is of line loss from fixed mobile substitution particularly 5G. This is generally assessed as low given.⁶⁴³

3.1383.1 Capacity constraints on mobile networks and the high cost of deployment for a higher quality broadband service.⁶⁴⁴

3.1383.2 The incumbency advantage of the LFCs in New Zealand who have achieved a high uptake.

3.1383.3 The delay in delivering spectrum that facilitates 5G roll out.

3.1383.4 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.”⁶⁴⁵

3.1383.5 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.⁶⁴⁶

3.1383.6 The Grant Samuel advice, as part of the de-merger prospectus for Telecom, noted fixed mobile substitution was likely to be low.⁶⁴⁷

proportion of the RAB which may be stranded would be less than 20% as those assets would continue to generate revenue.

⁶⁴³ For example, see Forsyth Bar 12 March 2019 and UBS 6 February 2019.

⁶⁴⁴ 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].

⁶⁴⁵ S&P Global Ratings, Chorus, 31 May 2018, Page 5.

⁶⁴⁶ For examples see, Credit Suisse, Chorus: Line loss continues but fibre uptake positive, February 2019

⁶⁴⁷ 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

3.1384 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.⁶⁴⁸ If they view the life of assets as 30 years – this is an approximate 10% risk in our **Table 3.14** which is based on ten years.

3.1385 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).

3.1385.1 Even 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.

3.1385.2 There are likely to be some other mitigations. Where the rival technology itself uses regulated FFLAS, as has been suggested for 5G,⁶⁴⁹ revenue may be reduced but not totally lost, even where end-users switch to that rival technology. Vodafone⁶⁵⁰ and some analysts have also noted that substitution to fixed wireless will see some demand recaptured to provide fibre to cellsites.

3.1385.3 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.

3.1385.4 Vodafone has noted that layer 2 assets are not irreversible investments, since they can be redeployed or sold and should be excluded.⁶⁵¹ 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].

complement (for mobility). As the market evolves over the next 20 years, it is expected that new applications will be data intensive.”

⁶⁴⁸ Investors Mutual Ltd, (no title), Letter of July 2019, page 2

⁶⁴⁹ 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.

⁶⁵⁰ Vodafone New regulatory framework for fibre: Submission on Fibre Regulation Emerging Views, July 2019, page 10.

⁶⁵¹ Vodafone submission pages 8 and 9.

3.1385.5 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 Trustpower⁶⁵² that apparently stranded fibre assets may become 'unstranded' over time. 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 small allowance.

3.1386 Consequently, this is likely to be more modest. In any event a range of between 10% and 40% of the RAB being potentially stranded were stranding to occur. We recognise once the first PQ path is specified, we will have more information on which to gauge this.

We consider that estimating a point low in the range best gives effect to the purpose of Part 6 in s 162

3.1387 We consider that a lower point in this range is likely to best give effect to the purpose in s 162 and have reached the draft decision of providing a 10-basis point allowance for asset stranding risk.

3.1388 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 that:

3.1388.1 setting the amount to zero risks failing to provide incentives for regulated providers to invest contrary to s 162(a); this is not compensation for all possible asset stranding risk. 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 the associated assets will still likely be used and will continue to generate revenue. 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; and

3.1388.2 there are mitigations to this risk as discussed in paragraphs 3.1383 to 3.1385.5, which points to a lower point in the range.

⁶⁵² 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.

Other gauges, which suggest quite different outcomes, are not as relevant

3.1389 In response to our emerging views paper Chorus provided a report from Oxera⁶⁵³ which included an estimate it views as an appropriate assessment of the *ex-ante* compensation for asset stranding.⁶⁵⁴

3.1390 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.

3.1391 For the reasons noted in paragraphs 3.1321 to 3.1328, we do not consider that this approach is relevant for our decision.

3.1392 For suppliers of gas pipeline services, as a result of the 2016 review of the IMs determined under Part 4,⁶⁵⁵ 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.⁶⁵⁶ Enable and Ultrafast submitted a report from WIK⁶⁵⁷ 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. 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.

3.1393 Our decision undertaken for the regulation of gas pipeline services was in response to the evidence and factual context of that decision. We now propose taking 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 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.

⁶⁵³ Oxera, Compensation for asymmetric type 2 risks, July 2019.

⁶⁵⁴ Oxera, Compensation for asymmetric type 2 risks, July 2019, paragraph 5.6.

⁶⁵⁵ Under s 52Y of the Commerce Act 1986 we must review each IM no later than seven years after its date of publication.

⁶⁵⁶ Commerce Commission, Input Methodology Review Decisions: Topic paper 4: Cost of capital issues, paragraphs 339 to 345.

⁶⁵⁷ 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.

This allowance applies to the entire RAB including the loss asset

3.1394 Our draft 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, i.e. the RAB x discount rate.

This will not be retrospectively applied to the pre-implementation period

3.1395 The allowance has been decided upon the forward-looking risks at this time. For the reasons provided in paragraphs 3.1365 to 3.1369, we do not consider that compensation over the pre-implementation period is required.

How should the *ex-ante* allowance be updated over time

3.1396 As we propose that the allowance is provided within the IMs, it would be reviewed at least every seven years.⁶⁵⁸

3.1396.1 The *ex-ante* allowance represents our best view of the risk of asset stranding based on the evidence before us over the next ten years 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.

3.1396.2 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.

3.1396.3 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 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.

3.1397 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.

⁶⁵⁸ Section 182(1).

3.1398 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.

Interrelationship with consideration of asset life shortening at specification of PQ paths

3.1399 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).

3.1400 When we consider the shortening of asset lives 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.

3.1401 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.

This decision affects the IMs

3.1402 Within the asset valuation IM, we propose:

- 3.1402.1 Allowing for the reduction of the RAB with respect to assets associated with deregulated areas, end-users or services;
- 3.1402.2 Providing for an *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
- 3.1402.3 Providing for the process to allow for the shortening of asset lives and alternative depreciation profiles.

Why we consider that nothing is required within the IMs for the purposes of ID regulation and asymmetric risk

3.1403 Our draft decision is that no adjustment for ID regulation through the IMs is required to account for asset stranding risk.

- 3.1404 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 submit asset stranding risk adjustments should not be sector-wide but firm specific and they require a higher adjustment than Chorus.⁶⁵⁹
- 3.1405 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.
- 3.1406 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.⁶⁶⁰ 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.
- 3.1407 The regulated fibre service 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. At a later date 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.
- 3.1408 Furthermore, we can consider any such evidence at the time we carry out summary and analysis on the performance of ID regulated providers.⁶⁶¹ We will be cognisant of the presence of asset stranding risk when interpreting the results of any *ex-post* analysis of profitability.

⁶⁵⁹ Enable & Ultrafast, Submission on NZCC Fibre Regulation Emerging Views: Technical Paper, July 2019, paragraphs 4.1 to 4.4.

⁶⁶⁰ Section 186.

⁶⁶¹ 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.

3.1409 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.⁶⁶² 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.

The other options we considered

Why basing compensation entirely on an ex-ante allowance is not favoured.

3.1410 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.

3.1411 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 3.1345 to 3.1350.2, explain why we do not consider that it is practical or desirable to eliminate all compensation associated with keeping assets in the RAB.

3.1412 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.

Why basing compensation entirely on retaining assets in the RAB is not favoured

3.1413 As we described earlier in paragraphs 3.1349 to 3.1350.2.2 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.

3.1414 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 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.

⁶⁶² Castalia, Rate of Return for Information Disclosure Profitability Monitoring of Local Fibre Companies, August 2019, page 8.

Why basing compensation largely on a combination of retaining assets in the RAB and shortening asset lives or an alternative depreciation profile is not favoured

3.1415 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:

3.1415.1 there are significant difficulties in estimating the quantum of any *ex-ante* allowance; and

3.1415.2 there is a greater risk that regulated providers are over-compensated.

3.1416 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 natural 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.

3.1417 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 3.1359 to 3.1359.3.

3.1418 Given this, we consider that providing a small *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).

Allowing the ex-ante allowance to vary at the time of resets.

3.1419 Our draft decision is to fix the *ex-ante* allowance within the IMs and to re-assess this during IM Reviews. We have considered the alternative of setting this allowance as part of the process of specifying the PQ paths. We consider this is less likely to best give effect to the purpose of Part 6 in s 162 for the reasons set out below.

3.1419.1 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 during the process of specifying a PQ path parties will be unable to fully consider this matter. A similar issue arises with the cost of capital which has benefited from the more considered review allowed under the IM process.

3.1419.2 Asymmetry of information between the regulator and regulated party is more likely to bite in these circumstances and for reasons we articulate earlier, we consider this may be important in this matter.

3.1419.3 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.

3.1420 We recognise that there are considerations both ways here. Consideration at the time of a PQ path will allow for more frequent reconsideration and this may provide greater 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.

3.1421 We also considered delaying this decision to a later date, effectively allowing for an allowance but setting an initial value of zero. Delaying this decision is proposed by Spark who notes the uncertainty of any such estimate and whether there is any substantive stranding risk.⁶⁶³ Spark also note the tight timelines for setting the IMs and the potential impact to end-users from increasing prices.

3.1422 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.

3.1423 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. When stranding is imminent it is typically too late to provide *ex-ante* compensation and may not be possible to provide *ex-post* compensation (for example if there are insufficient end-users left to generate the revenue required to provide compensation).

⁶⁶³ Spark "Fibre regulation emerging views: WACC - Cross-submission" (9 August 2019), paragraphs 64 to 68.

Quality IM

3.1424 Section 176(1)(b) of the Act requires an IM for quality dimensions. In general, quality is regulated to address the risk that, where there is little or no competition and/or prices or revenues are capped, a regulated provider's incentives to provide the service quality that end-users' demand may be weakened.

Summary of draft decisions for the quality IM

Quality IM	
1.	Level of prescription: the quality IM will set out quality dimensions and metrics.
2.	Quality dimensions: the quality IM will specify six fibre lifecycle dimensions (ordering, provisioning, switching, faults, availability and performance) along with an overarching dimension of "customer service".
3.	Applicability of the quality IM to ID and PQ: the quality IM will specify that, at a minimum, availability and performance dimensions must apply under ID and PQ regulation. Additional quality dimensions from the list set out in the IM may also be applied under ID and PQ regulation.

3.1425 In addition to explaining our draft decisions on the quality IM, we outline in this chapter the following intended approach in relation to quality performance measures and statistics (**performance measures**) in ID regulation, as well as quality standards in PQ regulation:⁶⁶⁴

- 3.1425.1 **Principles:** our ID and PQ regulation determinations for quality should be relevant, measurable, verifiable, controllable, and proportionate.
- 3.1425.2 **Processes:** for PQ, the Chorus capex IM will require that Chorus set out the relationship between expenditure and quality in its expenditure approval proposals, and we will draw upon existing information, to inform our PQ regulation determinations.
- 3.1425.3 **Role of UFB contracts in the new regime:** quality-related terms set out in the UFB contracts have informed the quality dimensions and metrics we have decided to include in the quality IM. The next level of detail, as is currently specified in the UFB contracts, may help inform our ID and PQ regulation determinations.

⁶⁶⁴ These should not be read as IM decisions, but are intended to help stakeholders understand our likely approach to setting ID and PQ regulation.

- 3.1425.4 **Quality standards in the first regulatory period:** quality standards for the first regulatory period will be specified in the PQ regulation determination, rather than in the quality IM. We will consult on these as part of the PQ process. However, we anticipate that the quality service levels in the UFB contracts are likely to be a useful starting point for stakeholder consultation in the first regulatory period.

How we have structured this chapter

3.1426 This chapter sets out and explains the draft decisions we have made in relation to the quality IM and is structured as follows:

- 3.1426.1 summary of draft decisions for the quality IM;
- 3.1426.2 the context for the quality IM, including:
 - 3.1426.2.1 the decision-making framework that we have applied in coming to our draft decisions; and
 - 3.1426.2.2 the relationship between the quality IM and other regulation;
- 3.1426.3 our draft decisions for the quality IM on:
 - 3.1426.3.1 the level of prescription to use in setting the quality IM;
 - 3.1426.3.2 the quality dimensions that will be included in the quality IM;
 - 3.1426.3.3 the minimum application of the quality IM to ID and PQ regulation; including further explanation set out in this reasons paper chapter but not in the quality IM regarding:
 - (a) the principles and processes for PQ and ID regulation;
 - (b) the role of the UFB contracts in the new regime; and
 - (c) the quality standards for the first regulatory period.

Context for the quality IM

3.1427 This section sets out:

- 3.1427.1 the requirements under the Act for IMs that relate to quality;
- 3.1427.2 relevant economic incentives;
- 3.1427.3 how the quality IM gives effect to the purpose of Part 6 in s 162;
- 3.1427.4 how the quality IM promotes workable competition in s 166(2)(b);
- 3.1427.5 how the quality IM promotes the purpose of IMs in s 174;
- 3.1427.6 how the quality IM relates to:
 - 3.1427.6.1 PQ regulation;
 - 3.1427.6.2 ID regulation;
 - 3.1427.6.3 other IMs;
 - 3.1427.6.4 s 226 regulations and ss 227-229 regulations;
 - 3.1427.6.5 retail service quality (**RSQ**) regulation under Part 7;
 - 3.1427.6.6 the UFB contracts; and
 - 3.1427.6.7 the fibre market context.

Requirements under the Act

- 3.1428 Section 178 requires us to determine the IMs referred to in s 176 for FFLAS by the implementation date.
- 3.1429 Section 176(1)(b) states the IMs relating to FFLAS must include quality dimensions.
- 3.1430 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.”
- 3.1431 Section 170 requires us to make determinations specifying how ID and PQ regulation, or both, apply to regulated providers. Section 170(2) states the determination must specify the IMs that apply. Section 172 requires the first PQ and ID determinations to be made after the IMs but before the implementation date.
- 3.1432 We discuss how the quality IM will promote the various statutory purposes in Part 6 further below from paragraph 3.1442.

Key terms relating to the quality IM

3.1433 Before explaining our decisions, it is necessary to explain quality dimensions and other key terms relevant to the quality IM.

3.1433.1 **Quality dimensions:** are defined in s 164 as measures of regulated FFLAS quality. We see these as high-level measures encompassing the broad aspects of service quality that will be included in the quality IM.

3.1433.2 **Quality metrics:** describe what is being measured and provide more granularity to quality dimensions. We include example quality metrics in the quality IM to increase certainty for regulated providers, access seekers and end-users.

3.1433.3 **Performance measures:** are more detailed measures than quality dimensions or metrics, set out in s 188. Performance measures focus on specific information required to be disclosed for an ID determination including how quality metrics will be measured and reported on. An ID determination may include quality performance measures and statistics,⁶⁶⁵ along with other similar more detailed information such as plans and forecasts, including (without limitation) plans and forecasts about demand, investments, prices, revenues, quality and service levels, capacity and spare capacity, and efficiency improvements.⁶⁶⁶

3.1433.4 **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. Quality standards may be prescribed in any way we consider it appropriate, for example targets, bands or formulae.

Relevant economic incentives

3.1434 In order to maximise profits in the presence of limited competition and/or a revenue cap, a firm has an incentive to reduce expenditure. Regulated providers subject to PQ regulation therefore have weakened incentives to grow, maintain and replace assets that form their networks, or to maintain operating costs that may be related to service quality, potentially to the detriment of quality and therefore end-user outcomes. In the absence of effective competition, regulated providers subject to ID regulation only may also face weakened incentives to provide the quality that end-users demand.

⁶⁶⁵ Section 188(2)(i).

⁶⁶⁶ Section 188(2)(g)

3.1435 Quality regulation addresses this problem by providing incentives to the regulated provider to appropriately maintain and replace assets, support service levels, connect access seekers and end-users in a timely manner, and facilitate network-to-network competition. The quality regulation we will set via the quality IM, as well as ID and PQ regulation, therefore aims to incentivise regulated providers to supply FFLAS in a manner that is “consistent with outcomes produced in workably competitive markets”.⁶⁶⁷

3.1436 Given the dynamic nature of telecommunications markets in general, potential increases in competition in future, including the threat of competition, will generally 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 reality, and thus best give effect to the purposes described in s 166(2). The depth of regulation set via PQ and ID could be reduced if competitive constraints increase in future.

3.1437 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:

3.1437.1 **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.

3.1437.2 **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.

3.1438 While quality regulation of regulated FFLAS is generally concerned with ensuring that the quality provided is not below the level that end-users demand, to the extent that the regulatory WACC is above the true WACC, a PQ regulated provider may also have a countervailing incentive to over-invest and deliver quality above the level that end-users demand. We attempt to mitigate this risk by setting an appropriate WACC and by the approval processes set out in the Chorus capex IM.

⁶⁶⁷ Section 162.

3.1439 Regulated providers may also have an incentive and ability to lessen competition from technologies competing with regulated FFLAS as an input to downstream retail markets. For example, where they provide inputs (eg, DFAS) to a downstream market (eg, FWA which competes with some FFLAS), regulated providers may have an incentive to provide a lower quality FFLAS input (eg, DFAS) than access seekers demand in order to lessen the access seekers' ability to compete at the retail level. Quality measures and standards under ID and PQ regulation help mitigate this incentive. However, this incentive is also addressed by the Fibre Deeds, requiring equivalence and non-discrimination in relation to the supply of unbundled layer 1 services.⁶⁶⁸

3.1440 Fibre end-users make PQ 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", as 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.

3.1441 Quality regulation can also be used to help identify poor asset management or performance. It is possible that a regulated provider spends what is considered to be an appropriate amount on the maintenance and renewal of its network, yet still is not considered to be achieving an appropriate level of quality. In these circumstances, it is possible that the reasons for not achieving an appropriate level of quality are due to poor asset management or performance, rather than a lack of expenditure.

The draft quality IM gives effect to the purpose of Part 6: section 162

3.1442 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".⁶⁶⁹

3.1443 As noted in the section above on economic incentives, quality regulation (underpinned by the quality IM) seeks to achieve this goal by allowing scrutiny of quality in the ID context. In the PQ context it does this by penalising contraventions of quality standards or providing other incentives, such as rewards or compensation. In the first instance, quality standards will be set based on our assessment of what level of quality end-users demand.

⁶⁶⁸ Section 156AD and the Fibre Deeds.

⁶⁶⁹ Section 162(b).

- 3.1444 As we outline further in the decisions section, 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. At the same time, we have specified dimensions that will always have performance measures and standards specified for them as these are likely to be of enduring importance to end-users. This will help ensure quality regulation provides appropriate incentives to deliver the quality we would expect to see delivered in workably competitive markets.
- 3.1445 We consider that the quality IM will also play some role in giving effect to the s 162 purpose by helping ensure that regulated providers “are limited in their ability to extract excessive profits”.⁶⁷⁰ 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 that quality regulation can be targeted to respond to particular incentives.
- 3.1446 Further, the quality IM and quality regulation may help to provide incentives to innovate and invest in line with s 162(a) by specifying performance measures and standards that must be met. For example, installation performance measures and standards 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.⁶⁷¹
- 3.1447 Lastly, a less direct way in which quality regulation (underpinned by the quality IM) can promote the s 162 purpose is through summary and analysis of disclosed information. Requiring disclosure of information about quality, when assessed together with other financial information, may also allow an interested person to assess whether regulated providers “have incentives to improve efficiency.”⁶⁷² This can in turn encourage regulated providers to increase efficiency, which is consistent with the Part 6 purpose at s 162(b).
- 3.1448 As explained further in the decisions section, our decisions on the level of prescription, quality dimensions and application of the quality IM to ID and PQ 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 consider that the quality IM decisions do not directly promote the outcomes described in s 162(c).

⁶⁷⁰ Section 162(d).

⁶⁷¹ The draft Chorus capex IM proposes an average unit cost is agreed upfront for different connection types. This may create an incentive for Chorus to under spend by deferring installations with an above average cost. Performance measures and standards will help address this incentive.

⁶⁷² Section 162(b)

The draft quality IM gives effect to the promotion of workable competition in s 166(2)(b)

3.1449 As discussed above, regulated FFLAS (including DFAS connecting mobile cell sites) may be used as inputs for other services (such as mobile services). Because of this, the quality IM may help promote competition in other telecommunications markets by underpinning performance measures and standards that encourage regulated FFLAS to be provided at a quality that reflects both access seeker and end-user demands.

3.1450 Specifically, the quality dimensions and level of prescription we will include in our quality IM 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 and that access seekers active 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 high-level enough to account for different performance measures and standards to be set under ID and PQ, as needed.

3.1451 Further, adopting a principle-based approach to the quality IM, with a set of high-level quality dimensions, builds in flexibility into the regulatory regime. The ability to adapt the quality standards and performance measures set under PQ and ID may help promote competition by increasing the regime's responsiveness to changes in end-user and access seekers' demands (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 draft quality IM promotes the purpose of IMs in s 174

3.1452 While 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, the quality IM provides the rules upon which PQ and ID determinations are based. We consider that the quality IM sufficiently promotes certainty by setting out:

3.1452.1 a complete list of quality dimensions and metrics that may be applied in our PQ and ID determinations; and

3.1452.2 those quality dimensions that we will always apply to PQ and ID determinations.

3.1453 We consider our approach to the quality IM provides the right level of certainty and will remain durable in a dynamic telecommunications market. We also consider that this approach strikes the right balance between flexibility and certainty. Our view is that the quality IM will provide “...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. A high-level of prescription does not in itself provide certainty. Conversely, flexibility itself, can provide regulated providers certainty in relation to the IM.⁶⁷³

3.1454 We also note that we cannot re-open a PQ path within a regulatory period on the grounds of a change to an IM, except if an IM changes as a result of an appeal under s 183. Therefore, we must ensure the quality IM is not overly prescriptive such that it would restrict us from setting an effective PQ path for the first and subsequent regulatory periods.

3.1455 In making our quality IM determinations in accordance with s 174 we have also considered the regulated services under ss 227-229, being the anchor service, DFAS and unbundled fibre services.⁶⁷⁴ The quality IM will need flexibility to be consistent with these regulated services if they are declared in regulation, particularly in the first regulatory period when regulated providers will transition from the UFB contracts to PQ and ID regulation. A highly prescriptive quality IM might make it difficult to align quality requirements under PQ and ID regulation with the specifications of regulated services, which may be subject to change.

How the draft quality IM relates to, and underpins, PQ regulation

3.1456 Section 192 states that the purpose of PQ regulation is “to regulate the price and quality of FFLAS provided by regulated fibre service providers.”

3.1457 Section 194(2)(c) stipulates that a PQ regulation determination must specify “...the quality standards that must be met by a regulated fibre service provider”. Section 194(4) states these quality standards “may, subject to any relevant IMs, be prescribed in any way the Commission considers appropriate (such as targets, bands, or formulae)”.

3.1458 The quality IM provides the base rules relating to quality that are adopted by a PQ regulation determination, and the quality standards must be prescribed in a way consistent with the quality IM.

⁶⁷³ Northpower, in its submission on the emerging views paper, noted that principle-based rather than prescription, will achieve more stable and enduring IMs. Northpower “Fibre emerging views submission” (18 July 2019), page 3.

⁶⁷⁴ Chorus made this point in its submission on the emerging views paper, suggesting it would be a mistake to set overly prescriptive quality IMs at the outset of the regime. Chorus “Fibre emerging views submission” (18 July 2019), page 14.

3.1459 As explained further in the decisions section, the IM sets out dimensions and example metrics that will determine the scope of potential standards under PQ regulation. In addition, the IM prescribes that two dimensions must always have standards set for them in PQ regulation determinations (availability and performance) and that other dimensions may also have standards set for them in PQ regulation determinations, as appropriate.

3.1460 As well as standards, PQ regulation may also provide for 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 or reporting requirements.

How the draft quality IM relates to, and underpins, ID regulation

3.1461 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.”

3.1462 Section 188(1)(f) states that a s 170 determination relating to FFLAS that are subject to ID regulation must specify the IMs that apply. Further, s 188(2)(i) states that information required to be disclosed under ID may include “quality performance measures and statistics.” Section 188(2)(g) also states that ID requirements may include “plans and forecasts” about “quality and service levels”. The quality IM will set the base rules for quality reporting requirements that will be adopted by an ID determination.

3.1463 An ID determination may require disclosure of “quality performance measures and statistics” and “plans and forecasts” about “quality and service levels”, which will allow interested persons to assess, in particular, whether a regulated provider is supplying “fibre fixed line access services of a quality that reflects end-user demands”.⁶⁷⁵ For example, the information disclosed under ID might highlight the fact that a regulated provider is slow to rectify faults, provides a faster service than others with fewer interruptions, or has high scores on installation experience surveys.

3.1464 Requiring disclosure of information about quality, when assessed together with other financial information, may also be relevant to an interested person’s assessment of whether regulated providers “have incentives to improve efficiency”⁶⁷⁶ or are “limited in their ability to extract excess profits,”⁶⁷⁷ even if the regulated provider is not subject to PQ regulation.

⁶⁷⁵ Section 162(b).

⁶⁷⁶ Section 162(b).

⁶⁷⁷ Section 162(d).

3.1465 For example, observing acceptable levels of quality and reduced expenditure may signal an efficiency improvement. Alternatively, if the quality of regulated FFLAS of a particular regulated provider were to deteriorate in a significant way or for a significant period of time, that might suggest that funds that should have been invested in order to maintain quality were being retained by the regulated provider. This may have contributed towards the regulated provider extracting excessive profits. In this way, scrutiny of performance measures and other quality reporting requirements we set via ID regulation can help promote outcomes consistent with those produced in workably competitive markets.

The relationship between the draft quality IM and other draft IMs

3.1466 As discussed above, the quality IM underpins quality regulation set via ID and PQ which 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. For example:

3.1466.1 enforceable quality standards (under PQ) and quality performance measures (under ID) underpinned by the quality IM and supported by the rules set by the Chorus capex IM; or

3.1466.2 an uplift to the regulatory WACC aimed to encourage investment.

3.1467 For the above, we considered:

3.1467.1 that regulated providers' fibre networks are relatively new and thus, the risk that under-investment can result in outages that can have an asymmetric impact on the experience of end-users might be lower relative to the risk in other markets we regulate. In this consideration we applied the principle of asymmetric risk of under-/over-investment – see further discussion on this issue in the cost of capital IM chapter; and

3.1467.2 that 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 that can specifically address the expectations of end-users for the level of quality to be provided by regulated providers. In contrast, there is no guarantee that regulated providers will choose to invest in higher network quality if an uplift to the regulatory WACC was allowed.

3.1468 In relying on quality regulation to establish the correct incentives for regulated providers to supply a level of quality that would be consistent with the level that might be observed in workably competitive markets (as required by s 162), there is a clear relationship between the Chorus capex IM and quality 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.

3.1469 Specifically, the Chorus capex IM will provide the rules and processes that regulated providers subject to PQ regulation will be required to follow for capital expenditure proposals to enable us to set an approved capex allowance for the regulatory period. The Chorus capex IM will also set out the rules and processes for how we will evaluate capex proposals.

3.1470 Considering the impact of capex on quality is one way in which we propose to evaluate proposed expenditure. We propose that the Chorus capex IM will require the regulated providers subject to PQ to set out the quality impacts of any capex proposal.

Interaction with prescribed service regulations under s 226, and ss 227-229

3.1471 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.⁶⁷⁸ The Act also allows the Governor-General, by Order in Council on the recommendation of the Minister, to make regulations declaring FFLAS to be an anchor service, a DFAS or an unbundled fibre service (together, **regulated fibre services**).⁶⁷⁹ If a person has been prescribed as being subject to PQ regulation, that person must provide that regulated fibre service if it has been declared.⁶⁸⁰

3.1472 The regulations declaring a service to be a regulated fibre service may prescribe, among other things, a description of the service, and within this, describe the technical specifications of the service and any other circumstances in which the service must be supplied.⁶⁸¹

3.1473 In our quality IM determination, we have set our mind to the quality dimensions that may be required for effective PQ regulation of the regulated services. In our view, having the six fibre lifecycle dimensions along with customer service allows a comprehensive and suitable suite of dimensions that can be applied to the PQ path if we deem them required considering the regulated fibre services.⁶⁸² We have also considered the appropriate level of prescription for the quality IM, bearing in mind the possible regulated fibre services.⁶⁸³

⁶⁷⁸ Section 226

⁶⁷⁹ Sections 227-229.

⁶⁸⁰ Sections 198-200.

⁶⁸¹ Sections 227(3)(d), 228(3)(2), 229(3)(d).

⁶⁸² Chorus, in its submission on the emerging views paper, submitted that the fibre service lifecycle is more than sufficient to cover all aspects of fibre service quality that may be measured under ID or PQ regulation, and that other constraints on quality were imposed by other regulatory instruments. Chorus "Fibre emerging views submission" (18 July 2019), page 127. Chorus also suggested that availability and performance were the only dimensions required for PQ regulation (page 92), however we consider that standards may be required for other dimensions (such as provisioning) to manage potential incentives to underinvest in network or service quality.

⁶⁸³ If initial s 227 regulations are made for an anchor service, s 14(3) of Schedule 1AA requires the Minister to prescribe a description of that service that is not materially different from the terms of a UFB contract.

3.1474 The quality IM applies to regulated FFLAS. Initially this will be all FFLAS, based on the exposure draft of the s 226 regulations as explained from paragraph 2.34 above, and will include the FFLAS types we set out in paragraph 2.63 (such as co-location and interconnection services). In the ID and PQ regulation determinations we may set out specific performance measures and quality standards that relate to access seekers and end-users. This will reflect the fact that these groups may have different FFLAS quality requirements, as well as the fact that s 164 defines quality dimensions as including responsiveness to access seekers and end-users.

Interaction with retail service quality

3.1475 As well as considering how the quality IM will work within the fibre regulatory framework, there is also some crossover between quality regulation through PQ, ID and RSQ. There are mechanisms to regulate wholesale quality via the IM and PQ/ID in Part 6, but we may also regulate quality matters through the powers regarding consumer matters in Part 7.

3.1476 Amongst other things, Part 6 of the Act aims to ensure that regulated providers “have incentives to... supply fibre fixed line access services of a quality that reflects end-user demands”.⁶⁸⁴ Similarly, RSQ codes under Part 7 of the Act aim to “improve retail service quality to reflect the demands of end-users of telecommunications services,”⁶⁸⁵ including end-users of FFLAS.

3.1477 RSQ means “...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 and related information, service performance, speed, and availability.”⁶⁸⁶

3.1478 In terms of aspects of quality, 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.⁶⁸⁷

3.1479 Any quality regulation we set using the regulatory instruments in Part 6 (quality dimensions IM, quality standards set under PQ, and performance measures specified under ID) will acknowledge the degree of wholesale control. We discuss this in greater detail from paragraph 3.1537.

3.1480 Similarly, the regulatory interventions available under Part 7 (Commission RSQ code and review of industry RSQ codes) will also need to take account of the principle of controllability.

⁶⁸⁴ Section 162(b).

⁶⁸⁵ For more information see Commerce Commission “Telecommunications retail service quality framework paper” (30 November 2018).

⁶⁸⁶ Section 5.

⁶⁸⁷ TUANZ “Submission on new regulatory framework for fibre” (21 December 2018), paragraph 26.

3.1481 We will need to ensure that our powers under Part 6 and Part 7 are applied in a consistent and complementary manner and does not over-burden industry participants. For example, under Part 6, we will eventually be collecting information on quality from regulated providers via ID. The Act also gives us the power to require the supply of information to support our functions of monitoring and reporting on RSQ, in addition to our existing information gathering powers under s 9A. As part of exercising these new powers, we will look to use a number of different methods to collect that data, including surveys.

Interaction with UFB contracts

3.1482 Regulated providers entered into UFB contracts as part of the UFB initiative. The UFB contracts require the regulated providers to make available wholesale service agreements containing approved price and non-price terms for the supply of fibre services to access seekers.

3.1483 The UFB contracts regulate the quality of the services that regulated providers make available to access seekers and, by extension, end-users. The UFB contracts prescribe quality requirements, including service level targets, and set out penalties in the form of service payments or rebates for failure to meet those targets.

3.1484 After implementation date, regulated providers will no longer be bound by the quality requirements in the UFB contracts, and we will have the primary responsibility for regulating the quality of regulated FFLAS offered by regulated providers.

3.1485 Under the Fibre Deeds regulated providers are required to offer certain input services from 1 January 2020 on an equivalent and non-discriminatory basis.^{688,689} The Fibre Deeds also require regulated providers to offer services on a non-discriminatory basis. We acknowledge there will be aspects of quality regulation via the Fibre Deeds that will maintain a level of consistency in the supply of regulated FFLAS.

3.1486 We have considered whether the quality IM could be a mechanism to require the continuation of the wholesale services agreements currently required by the UFB contracts.⁶⁹⁰ The role of the quality IM is to underpin ID performance measures and PQ standards. We do not consider requirements for wholesale services agreements between third parties are within the scope of the quality IM, or PQ and ID regulation.

⁶⁸⁸ These input services are a direct fibre access service, PON fibre access service, and a central office and POI colocation service, and any other unbundled layer 1 service that is required.

⁶⁸⁹ For UFB2 these services must be offered from 1 January 2026.

⁶⁹⁰ Some submitters suggested the UFB contracts continue. For example, in their emerging views paper submission Vodafone stated “We would like to see the Wholesale Service Agreements (WSAs) agreed by the industry continue into the new regime. These agreements are the result of hard fought negotiations and represent an effective compromise that is delivering good results for end-users”. Vodafone “Fibre emerging views submission” (18 July 2019), page 5.

3.1487 We also do not consider that the level of prescription in the UFB contracts is appropriate for an IM that needs to be durable and relevant in the face of technological and industry change.⁶⁹¹

3.1488 However, the quality requirements in the UFB contracts have assisted us in setting the quality IM dimensions and metrics and will also help inform performance measures under ID as well as standards under PQ regulation.

3.1489 We discuss the role of the UFB contracts under the fibre regulatory regime further below. These agreements were commercial arrangements, carefully negotiated and drafted in a way that is effective for their intended purpose with very different consequences or penalties for failure.⁶⁹² Our task is to consider how quality regulation will apply in the new fibre regime under Part 6 of the Act, taking into account the Part 6 purposes.

3.1490 In addition, we note that the quality IM will apply to regulated providers in different ways under PQ regulation and ID regulation. From the implementation date, the quality of regulated FFLAS will not be subject to such direct control, as is the case under the UFB contracts.

Fibre market context

3.1491 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:

3.1491.1 the incentives regulated providers have in relation to quality, and how these incentives might change in the face of emerging or increased competition in telecommunications markets;

3.1491.2 the dynamic nature of the telecommunications industry, for example, the rapidly changing technology and end-user demands; and

3.1491.3 the quality dimensions that can be controlled by regulated providers at least to some degree, as opposed to those dimensions that access seekers have more control over.

⁶⁹¹ Spark, in their emerging views paper submission, made the point that WSA service levels may no longer be relevant in 2022, let alone 2025. Spark “Fibre emerging views submission” (18 July 2019), page 2.

⁶⁹² Section 215 sets out that the High Court may impose pecuniary penalties for a breach of any PQ requirement.

Our draft decisions for the quality IM

3.1492 This section sets out our draft decisions for the quality IM on:

- 3.1492.1 the level of prescription to use in setting the quality IM;
- 3.1492.2 the quality dimensions that will be included in the quality IM;
- 3.1492.3 the minimum application of the quality IM to ID and PQ regulation; including
 - 3.1492.3.1 the principles and processes for PQ and ID regulation;
 - 3.1492.3.2 the role of the UFB contracts in the new regime; and
 - 3.1492.3.3 the quality standards that will apply for the first regulatory period.

The level of prescription to use in setting the quality IM

Summary of draft decision

3.1493 Our decision is that the quality IM will specify quality dimensions and metrics (but not performance measures or standards).

Background

Approach to setting the quality IM

- 3.1494 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:
- 3.1494.1 the need for regulated providers, access seekers and end-users to have certainty on how we intend to apply the quality IM to regulation under Part 6;
 - 3.1494.2 the dynamic nature of the telecommunications markets and the need for:
 - 3.1494.2.1 the quality IM to remain relevant and appropriate for the PQ path for the first and subsequent regulatory periods;
 - 3.1494.2.2 regulated providers to have the flexibility and incentives to innovate and adapt their services, business operations and investments in response to market changes and increasing competition;
 - 3.1494.3 that end-user demands tend to evolve over time as telecommunications technology or the market changes;

3.1494.4 that as competition emerges or increases in regulated FFLAS markets and other telecommunications markets, regulated providers' incentives to maintain, increase or reduce quality will also change.

3.1495 For the quality IM, we have also set our minds to the requirements of s 176(2) 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 the material effects of the methodology. Our decision to implement quality dimensions that give effect to the full fibre lifecycle including customer service is discussed in detail below.

3.1496 In determining the extent to which IMs should be prescriptive or flexible we have considered the elements of PQ regulation that will require change and the exercise of judgement at each regulatory reset, and those that will not.

3.1497 As part of our early work on fibre regulation, we commissioned a report from CEPA which undertook a preliminary analysis of the:⁶⁹³

3.1497.1 potential scope of "quality dimensions" for fibre services;

3.1497.2 relevant international experience in this area; and

3.1497.3 applicability to economic regulation in the New Zealand context.

Level of prescription

3.1498 We have considered the level of prescription for the quality IM, the purposes in the Act, our obligations in relation to determining IM, PQ and ID regulation and how these regulations interact. In doing so, we took into account the dynamic nature of telecommunications markets in general, and regulated FFLAS in particular, and how our choice of prescription for the quality IM might impact on the long-term interests of end-users given the potential for market circumstances to change rapidly. We also shared our preliminary views and consulted with stakeholders. Following our assessment, we determine that the quality IM should be set at a level of prescription that broadly aligns with "level 3" described in the CEPA report:

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)".

⁶⁹³ Cambridge Economic Policy Associates "Quality dimensions of wholesale fibre telecommunications services" (1 November 2018). This was published alongside our proposed approach paper and our emerging views paper.

3.1499 We consider it important that the IM sets out the quality dimensions that performance measures and standards may be set for. To increase certainty for stakeholders, we also think metrics should be provided setting out what will be measured for dimensions (such as “average downtime”, for the “availability” dimension) but not how that metric should be measured, as this may be subject to change.

3.1500 We considered a less prescriptive approach but do not consider that this provides enough certainty on quality for PQ and ID regulation.

3.1501 We also considered a more prescriptive approach, but do not consider that this provides enough flexibility, given the dynamic nature of telecommunications markets, to enable effective quality regulation of regulated FFLAS under PQ and ID regulation.

Rationale for preferred approach

3.1502 We have set the appropriate degree of prescription in the quality IM that best gives effect to the purposes in s 166(2) and s 174. The level of prescription we set can be seen in our:

3.1502.1 level of detail for the quality dimensions in the IM; and

3.1502.2 specification of metrics alongside the quality dimensions.

3.1503 Our view is that this approach provides adequate certainty to regulated providers as to how quality regulation will be applied. At the same time, it still provides enough flexibility to set standards via PQ regulation and performance measures via ID regulation in a way that could be adapted to changing market circumstances or changes to regulated FFLAS.

The promotion of the purpose of Part 6: Section 162

3.1504 Our view is that including too much detail or prescription in the quality IM may reduce our ability to set effective ID and PQ regulation determinations in a way that promotes the long-term benefit of end-users in regulated FFLAS markets, as well as telecommunications markets more generally.

3.1505 By setting out quality dimensions and metrics in the IM, we can determine those quality standards and performance measures required for PQ regulation and ID regulation relevant to the market context at the time of the determinations, including the quality that reflects end-use demands at that time (per s 162(b)). Whereas, if the IM sets out too much detail or prescription, we may be unable to reflect quality appropriately in these PQ and ID regulations.

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

3.1506 In our view, the level of prescription we intend to use in setting the quality IM, including metrics, provides the best level of detail for us to make effective PQ and ID determinations on quality. We think this 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.

3.1507 If the IM is too prescriptive or detailed, it may not reflect access seekers' or end-user demands at a future time, which may impede effective downstream competition.

The promotion of the purpose of IMs: Section 174

3.1508 We consider our proposed quality dimensions and 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 standards may be set via PQ regulation. In our view, the level of flexibility we have applied itself provides certainty to meet the purpose of s 174 of the Act. This allows us to set effective PQ and ID regulation for quality that best gives effect to the dynamic and fluid nature of the telecommunications markets, including the outcomes we must promote under s 166(2).

The quality dimensions that will be included in the quality IM

Summary of draft decision

3.1509 We will include the following seven quality dimensions (in bold) and quality metrics in the quality IM:

3.1509.1 **availability**; which may include (without limitation):

- (i) maximum and average downtime;
- (j) notification of planned and unplanned outages.

3.1509.2 **performance**, which may include (without limitation):

- (k) frame delay;
- (l) frame loss;
- (m) frame delay variation;
- (n) port utilisation.

3.1509.3 **ordering**, which may include (without limitation):

- (o) time to complete order.

3.1509.4 **provisioning**, which may include (without limitation):

(p) time to provision service.

3.1509.5 **switching**, which may include (without limitation):

(q) time to disconnect regulated FFLAS from one access seeker and connect to another;

(r) time to disconnect from one type of regulated FFLAS and connect to another.

3.1509.6 **faults**, which may include (without limitation):

(s) incidence of faults;

(t) time to restore regulated FFLAS.

3.1509.7 **customer service**,⁶⁹⁴ which may include (without limitation):

(u) end-user connection satisfaction;

(v) missed appointments;

(w) time to establish an access seeker.

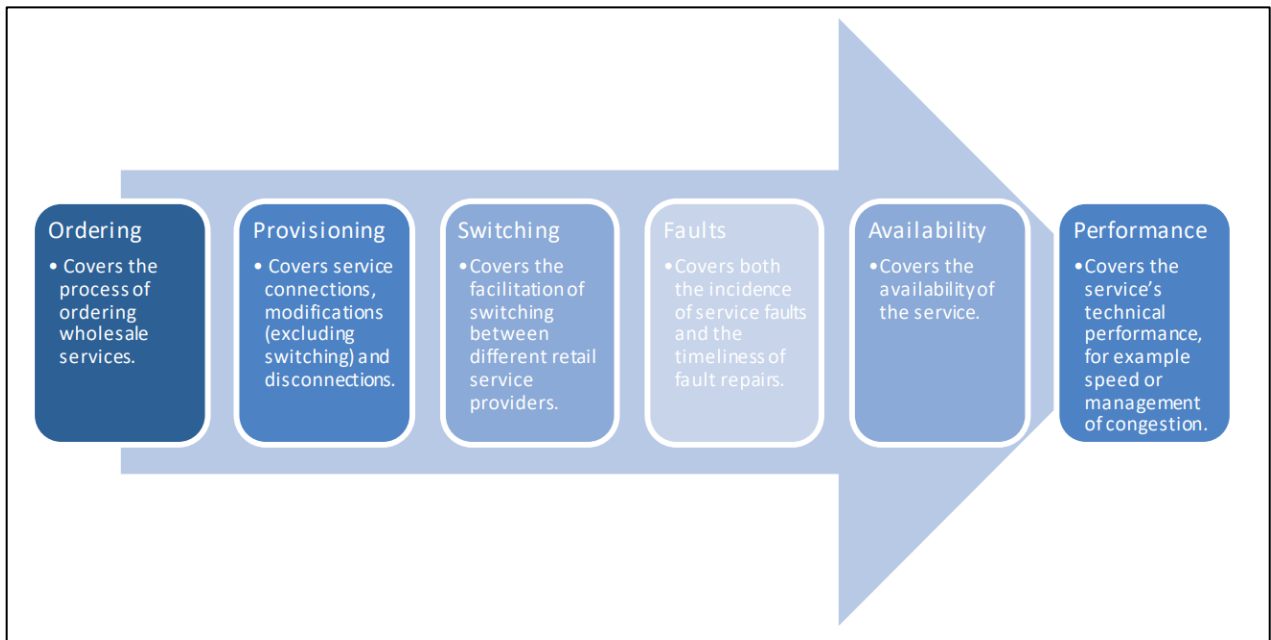
Rationale for draft decision

3.1510 Our quality IM includes six broad categories as quality dimensions along with an overarching dimension category around customer service. Our view is that these adequately cover all relevant quality dimensions of a regulated FFLAS lifecycle. As illustrated by **Figure 3.9**, the first six of these quality dimensions represent stages of a regulated FFLAS lifecycle, which consists of ordering, provisioning, switching, faults, availability and performance.⁶⁹⁵

⁶⁹⁴ Note that the customer service dimension includes responsiveness to access seekers and end-users.

⁶⁹⁵ Cambridge Economic Policy Associates “Quality dimensions of wholesale fibre telecommunications services” (1 November 2018), page 10. These six categories were identified by CEPA as part of their work for us on fibre quality matters.

Figure 3.9: Quality dimensions of a regulated FFLAS lifecycle



3.1511 We have decided to adopt these seven dimensions of quality because they:

- 3.1511.1 are currently reflected in the UFB contracts, and as a result are largely familiar to industry;
- 3.1511.2 are partially or entirely within the control of the regulated provider;
- 3.1511.3 can easily be applied, where appropriate, to quality performance measures under ID regulation and quality standards under PQ regulation, particularly as these are also reflected in the UFB contracts.

3.1512 In our view, our proposed quality dimensions are largely accepted by stakeholders.⁶⁹⁶ After considering stakeholder views we concluded that additional quality dimensions for consultation and innovation were not necessary.⁶⁹⁷

The promotion of the purpose of Part 6: Section 162

3.1513 We considered only including a subset of the proposed quality dimensions in the IM, such as availability and performance. However, we consider that promoting the s 162 purpose may require us to set quality performance measures and standards across other dimensions in order to fully reflect all aspects of “quality that reflects end-user demands” (per s 162(b)).

⁶⁹⁶ Stakeholders were not in agreement on the application of the proposed quality dimensions to PQ and ID regulation.

⁶⁹⁷ Submitters were not supportive of additional quality dimensions along these lines.

3.1514 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 (in line with the requirement in s 162 to promote outcomes consistent with those in workably competitive markets) if certain quality dimensions give us cause for concern.

3.1515 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 as more move to fibre.”⁶⁹⁸

3.1516 We recognise the importance of those quality dimensions that come later in the fibre service lifecycle (availability and performance), that are likely to be of enduring importance. As discussed in more detail below, we will always apply ID performance measures and PQ path quality standards for these two dimensions.

3.1517 Having a full set of quality dimensions also allows us to place greater reliance on performance measures, enforceable standards and potentially 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)

3.1518 The inclusion of a broad set of quality dimensions as well as an overarching dimension of customer service will enable us to set measures and standards as part of PQ and ID that may help promote competition in relevant markets and benefit telecommunication services end-users as well as regulated FFLAS end-users.

3.1519 By specifying quality dimensions that cover the entire lifecycle of FFLAS as well as customer service, we ensure that quality standards under PQ and performance measures under ID 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 approach supports the promotion of competition in downstream retail markets.

The purpose of IMs: Section 174

3.1520 We consider that the inclusion of the seven quality dimensions and metrics set out above provides certainty as to the potential ambit of performance measures under ID and quality standards under PQ regulation, while ensuring that the quality IM is durable by covering potential shifts in importance of different aspects of the regulated FFLAS lifecycle.

⁶⁹⁸ Commerce Commission “Fibre regulation emerging views – Technical paper” (21 May 2019), page 152.

Minimum application of the quality IM to ID and PQ Regulation

Summary of draft decision

3.1521 Quality performance measures and statistics under ID and quality standards under PQ regulation must be specified for the quality dimensions of “availability” and “performance” and may also be specified for one or more of the other dimensions set out in the IM.

Rationale for draft decision

3.1522 We recognise those quality dimensions that come later in the fibre service lifecycle (availability and performance), that are likely to be of enduring importance. As discussed in more detail below, we will always apply these two dimensions to performance measures under ID and quality standards under PQ determinations.

3.1523 We consider that our draft decision:

3.1523.1 gives stakeholders certainty that performance measures under ID regulation and quality standards under PQ regulation will always be determined for at least “availability” and “performance” quality dimensions; and

3.1523.2 gives us the flexibility as to which other dimensions we select to apply to ID and PQ regulation, based on several factors including any evidence that a particular dimension is (or is likely to be) problematic.

3.1524 The relevance of quality dimensions may change over time. For example, we anticipate that the provisioning dimension is likely to be an important focus for the first regulatory period while fibre connections remain high but may decrease in importance over time as fibre uptake levels slow or flatten. However, we consider that performance and availability will always remain relevant and important.

3.1525 In reaching this decision we considered views raised by stakeholders as to how the quality IM should be applied to ID and PQ regulation. Some stakeholders suggested that some but not all of the quality dimensions set out in the IM should become performance measures under ID or quality standards under PQ regulation.⁶⁹⁹ Others suggested that the IM should not go into too much detail about specific disclosure requirements, but that this should be done via ID determinations.⁷⁰⁰

⁶⁹⁹ For example, Chorus recommended that the quality IM “[i]ncludes specific quality dimensions under which the Commission may (but does not have to) set measures [under ID] and/or standards [under PQ regulation].” Chorus and Ultrafast Fibre submission on “Fibre regulation emerging views - Technical paper” (16 July 2019), page 80.

⁷⁰⁰ Northpower submission on the “Fibre regulation emerging views - Technical paper” (16 July 2019), paragraph 22.

- 3.1526 While the quality IM does not contain a large amount of detail as to what the ID and PQ regulation requirements will be, stakeholders will have an opportunity to comment via the respective consultation processes.
- 3.1527 When we make PQ regulation determinations, we may choose to set quality standards in a way that anticipates future changes. For example, we could set a quality standard that is a moving average of the industry.
- 3.1528 We consider quality regulation should be targeted and proportionate, recognising the factors affecting service quality. To do this, quality dimensions could be applied to PQ and ID regulation in different ways. An example of this in Part 4 is asset management plans, which are required from EDBs as part of ID regulation, but not via PQ regulation.
- 3.1529 Once we have set the quality IM, we may require different quality performance measures and statistics under ID regulation and different quality standards under PQ regulation for different purposes. For example, we may wish to break down reporting requirements by geographic areas, or by types 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. This would allow us to better tailor the regulatory instruments to achieve the purposes of Part 6.

The purpose of Part 6: Section 162

- 3.1530 We consider the principal way the quality IM will give effect to the s 162 purpose is to underpin PQ regulation and ID, which in turn helps ensure that regulated providers “have incentives to... supply fibre fixed line access services of a quality that reflects end-user demands”.⁷⁰¹ We consider that the quality IM will also play some role in giving effect to the s 162 purpose by helping ensure that regulated providers “are limited in their ability to extract excessive profits”. 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.⁷⁰²
- 3.1531 This decision reflects the fact that end-users are likely to always demand that regulated FFLAS are available and perform in line with expectations. Therefore, requiring that performance measures under ID and standards under PQ must always be set at least for the quality dimensions of performance and availability helps ensure that the correct incentives will be in place around at least these aspects for regulated providers 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 of the purpose at s 162(b)).

⁷⁰¹ Section 162(b).

⁷⁰² Section 162(d).

3.1532 The ability to also apply measures and standards to other quality dimensions provides flexibility to provide incentives around any other aspects of the quality lifecycle that may be important to end-users at a particular time. For example, we envisage that measures and standards around provisioning (installation) are likely to be important to end-users at least in the first regulatory period.

The purpose of IMs: Section 174

3.1533 We consider that the decision to specify two dimensions that will always have performance measures and standards applied to them promotes certainty for regulated providers. On the other hand, selecting only the two 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.

3.1534 We have provided further information in the sections below on how we expect to apply the quality IM in PQ and ID regulation to help regulated providers estimate the material effects of the methodology.

Principles and processes for PQ regulation and ID regulation

3.1535 The below principles and processes for the application of the quality IM under ID and PQ regulation are set out in this chapter but not prescribed in the quality IM itself.

Principles

3.1536 We have not included these characteristics or principles in the IM itself, but have explained our understanding of these best practice characteristics to help stakeholders understand our likely approach to setting ID performance measures and PQ standards. We also consider that the purposes in the Act provide certainty around the application of some principles such as promoting incentives to innovate and invest alongside efficiency.

3.1537 We would seek to ensure that any performance measures or standards are:⁷⁰³

- 3.1537.1 **relevant:** important to ensuring FFLAS service quality reflects end-user demands;
- 3.1537.2 **measurable:** able to be measured by regulated provider(s);
- 3.1537.3 **verifiable:** able to be checked or demonstrated to be true or accurate;
- 3.1537.4 **controllable:** able to be controlled (at least to some extent) by regulated provider(s); and
- 3.1537.5 **proportionate:** the benefits to access seekers or end-users justify the costs to regulated provider(s).

⁷⁰³ CEPA “Quality dimensions of wholesale fibre telecommunications services”, page 11.

ID process

3.1538 In determining ID performance measures, we intend to consult with interested parties, which may include holding a technical workshop on current fibre industry practices, including:

- 3.1538.1 the ease of accurately generating quality reporting performance measures using current reporting systems and processes; and
- 3.1538.2 the costs and benefits of regulated providers upgrading or changing reporting systems and processes to generate accurate quality performance measures.

PQ process

3.1539 In determining PQ path quality regulation, we intend to:

- 3.1539.1 consult with interested parties, such as regulated providers and access seekers, which may include holding a technical workshop, in order to seek views on:
 - 3.1539.1.1 which quality dimensions should be applied as quality standards; and
 - 3.1539.1.2 how those quality standards should be set and their relationship to any additional revenue-linked incentive scheme;
- 3.1539.2 consider available information on:
 - 3.1539.2.1 the quality of regulated FFLAS currently or historically supplied by regulated providers;
 - 3.1539.2.2 the impact of any quality concerns or issues related to a particular quality dimension on end-users and access seekers;
 - 3.1539.2.3 incentives regulated providers face to supply regulated FFLAS at a quality that end-users demand; and
 - 3.1539.2.4 the trade-offs between expenditure and quality.

3.1540 We propose that the Chorus capex IM will require the linkages between expenditure (inputs) and quality levels (outputs) to be set out by a regulated provider in its expenditure proposals to help inform our assessment of expenditure-quality trade-offs. These will inform the setting of quality standards along with input from other stakeholders as part of PQ regulation consultation processes.

3.1541 We may set different quality measures and standards in the ID and PQ regulation determinations for different purposes. For example, we may wish to break down reporting requirements by geographic areas, or by types of end-users (such as business or residential) or access seekers. We may also differentiate by service such as layer 1 and layer 2, as different FFLAS face different levels of competition. This would allow us to better tailor the regulatory instruments to achieve the purpose of Part 6.

Role of the UFB contracts in the new regime

3.1542 While aspects of the UFB contracts can inform our quality dimensions and metrics, the level of detail on quality requirements in the UFB contracts is more appropriate to inform the quality performance measures for ID regulation and quality standards for PQ regulation. These will be set following separate consultations prior to ID and PQ determinations.

3.1543 We anticipate the quality requirements of the UFB contracts will provide a useful starting point for ID and PQ regulation, at least for the first regulatory period. As part of ID and PQ consultation processes, we may consider reasons for any proposed variance from UFB measures and service levels for applicable dimensions and metrics. However, as mentioned above from paragraph 2.9, we expect the relevance of the characteristics from the UFB initiative to reduce as the Part 6 framework develops and we move beyond the first regulatory period.

Quality standards for the first regulatory period

3.1544 We intend to consult on what quality standards will be necessary and appropriate prior to the first regulatory period, as it is important that these standards reflect the quality end-users demand.

3.1545 We are not proposing to defer setting quality dimensions or measures.

3.1546 We anticipate that UFB contract quality standards related to relevant dimensions and metrics will provide a useful starting point. We would want to understand the reasons for any proposed variance from UFB contract standards at least for the first regulatory period for applicable dimensions and metrics.

Chorus capex IM

Introduction to Chorus capex IM

3.1547 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)).

3.1548 As explained in paragraphs 3.1553 and 3.1554 below, we refer to the capex IM as the Chorus capex IM as it 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.⁷⁰⁴

3.1549 We intend to hold a workshop on the Chorus capex IM draft decisions following the publication of this paper. We will advise the agenda prior to the workshop but we expect it to include time frames and processes for base capex proposals and the proposed mechanisms to deal with uncertainty.

Summary of draft decisions

High-level approach

1. We have adopted an ex-ante “propose and approve” style approach to assessing and approving Chorus’ capex projects and programmes.
2. The style of assessment will be a top-down assessment of capex.⁷⁰⁵ However, this may be supported with a limited “bottom-up” review of selected projects and programmes.

Core framework

Base capex

3. Chorus will submit a base capex proposal to be assessed by the Commission prior to a regulatory period.
4. Base capex incorporates all forecast capital expenditure except for those expenditure types that have a high degree of uncertainty around the need, cost and/or timing, as described in the connection capex and individual capex categories below.
5. The capex within the base capex proposal will be substitutable – i.e. actual capex for expenditure sub-categories may vary from forecast capex provided that total capex remains below the approved base capex allowance.
6. The approved base capex allowance will be net of all capital contributions.

⁷⁰⁴ Note for the purpose of this chapter, when we refer to MAR, we mean the allowable revenues under a price-quality path.

⁷⁰⁵ This draft decision informs the approach to setting the evaluation criteria and information requirements in the other draft decisions in the capex IM.

Connection capex

7. Connection capex includes Chorus connection expenditure where the communal network already exists or will exist at the time of connection, including UFB initiative brownfield, greenfield and infill expenditure, and Chorus-led migrations from copper to regulated FFLAS.
8. The approval of connection capex will be separated into two components, a baseline component and a variable component.
9. The connection capex baseline component will be submitted along with the base capex proposal (but separate from it), along with unit rates that will apply to the connection capex variable component. The total connection capex variable component will be determined by applying approved unit rates to the difference between actual connection volumes and forecast connection volumes set out in the baseline component.
10. The approved connection capex allowance will be net of all capital contributions.

Individual capex

11. Individual capex provides for projects and programmes with a value greater than \$5 million, where the uncertainty associated with the expenditure means that it is hard to evaluate at the time of base capex approval or where expenditure needs to be ring-fenced rather than substitutable.
12. The approach to approving individual capex includes a materiality threshold, staged application process, consultation requirements and a commensurate approval approach.
13. The approved individual capex allowance will be net of all capital contributions.

Evaluation of capex proposals

14. The Commission will evaluate a base capex proposal, a connection capex proposal or an individual capex proposal by considering whether the proposed expenditure meets the expenditure objective and reflects good telecommunications industry practice.
 - a. The expenditure objective is that capital expenditure reflects the efficient costs that a prudent fibre network operator would incur to deliver regulated FFLAS at appropriate quality, during the upcoming regulatory period and over the longer term, having regard to good telecommunications industry practice.
 - b. Good telecommunications industry practice in relation to regulated FFLAS means the exercise of that degree of skill, diligence, prudence, foresight and economic management, as would reasonably be expected from a skilled and experienced asset owner engaged in the management of a fibre access 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 size, age and technology of the relevant fibre network and domestic regulatory and market conditions, including applicable law.
15. The Commission will also have regard to assessment factors, when evaluating a base capex proposal, connection capex proposal or individual capex proposal.
16. The evaluation criteria will be applied as appropriate considering the different risks and the variable need for oversight from the Commission in the assessment of base capex proposals, connection capex proposals and individual capex proposals. For example, we anticipate that not all of the evaluation criteria and assessment factors will be relevant to UFB initiative related capex, due to the already committed nature of the programme.

Information requirements

17. Our draft decision is to apply different information requirements to the different capex categories we have identified.

Base capex proposal

18. The IM specifies minimum information requirements for a base capex proposal. The IM requires that Chorus provides an integrated fibre plan at the same time as a base capex proposal that will in part address the minimum information requirements.

19. The Commission will also agree regulatory templates with Chorus prior to when a base capex proposal must be submitted, which will include the expenditure sub-categories.

Connection capex

20. To assess connection capex the IM requires annual reporting, including audited and unaudited volumes, unit rates and forecasts. We will also require sufficient information to assess and approve the unit rates by connection type.

Individual capex proposals

21. Information requirements for individual capex proposals are likely to vary on a case by case basis. The individual capex has a staged proposal process and the Chorus capex IM specifies a minimum set of requirements for each stage.

Audit and certification

22. Our draft decision is to apply specific audit and certification requirements to the different categories of capex we have identified.

Independent verification

23. We will require that Chorus submit an independent verification report along with its base capex proposal and with Individual Capex proposals, proportionate to the materiality and complexity of the proposal. Transitional arrangements will be required for the first regulatory period to account for the compressed timeframes.

Consultation requirements

24. We will consult on Chorus' base capex proposal. The extent to which Chorus has undertaken its own consultation prior to submission will be an information requirement and an assessment factor to consider when evaluating the proposal.

How we've structured this chapter

3.1550 This chapter sets out and explains the draft decisions we have made in relation to the Chorus capex IM. We have structured the chapter in the following way:

3.1550.1 Context for our draft decisions including our decision-making framework; and

3.1550.2 Our draft decisions and rationale sections.

Context

The Act requires IMs that relate to capital expenditure projects

3.1551 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.

3.1552 Methodologies for capital expenditure projects include:

- 3.1552.1 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);
- 3.1552.2 The criteria the Commission will use to evaluate capital expenditure proposals; and
- 3.1552.3 Time frames and processes for evaluating capital expenditure proposals, including what happens if the Commission does not comply with those time frames.

3.1553 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.

3.1554 Should another provider become subject to PQ regulation we will determine an applicable capex IM setting out the rules and processes for evaluating their capex proposals. We expect the applicable capex IM will draw on some elements of the Chorus capex IM. However, the extent to which a capex IM for another regulated provider is similar to the capex IM applicable to Chorus, will depend on the provider and the extent and nature of the PQ regulation determined to apply.

Decision-making framework

The promotion of the purpose of Part 6: Section 162 and 166(2)(b)

- 3.1555 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) and, where relevant, with the promotion of workable competition in telecommunications markets more generally as set out in s 166(2)(b).⁷⁰⁶ This consideration has included the likely impacts on Chorus' incentives, as outlined further below.
- 3.1556 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 rules do not direct Chorus to make specific investments and they do not prevent any particular investment, except in the context of evaluating the expenditure against the investment objective.
- 3.1557 As explained in **Chapter 2**, from paragraph 2.12, 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.

Section 162 – incentives to invest, find efficiencies, limit monopoly profits

- 3.1558 The primary role of the Chorus capex IM is to mitigate over-spending and over-forecasting risks. Capex rules are to ensure regulated FFLAS end-users do not bear costs that reflect inefficient levels of investment expenditure rather than capex outcomes that are consistent with a workably competitive market. This means the capex processes and rules address both the over-investment incentives and over-forecast risk.
- 3.1559 The regulatory framework chapter discusses how the use of a BBM approach in developing the regulatory regime 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 FFLAS. This results in a risk of over-forecasting for investment expenditure or over-spending above efficient levels, especially if the regulatory WACC is above Chorus' true WACC.
- 3.1560 Once the MAR is set, there is also a risk that Chorus will have an incentive to under-spend to increase profits, and this may result in a reduced level of quality. The Chorus capex IM rules help mitigate this risk by allowing proposals in subsequent regulatory periods to be evaluated against past expenditure in a particular capex subcategory.

⁷⁰⁶ The purpose statements in Part 6 of the Act are discussed in more detail at from paragraph 2.104 above.

- 3.1561 Chorus could pursue different strategies to increase the MAR through capital expenditures, including:
- 3.1561.1 over-forecast capex above efficient levels; and/or
 - 3.1561.2 over-invest in the network above efficient levels.
- 3.1562 Once the MAR has been set, Chorus might have an incentive to under-invest (or delay investment) in order to increase returns in the short term.
- 3.1563 We note that Chorus would have an incentive to increase the MAR through actual over-investment in the network if, for example:
- 3.1563.1 the cost of capital IM sets rules that result in a favourable regulatory WACC that exceeds the true cost of capital; or
 - 3.1563.2 they can benefit from targeted over-investment that in the long-term could lessen competition for the provision of network services in competition with regulated FFLAS in certain geographic areas or product segments.
- 3.1564 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 the proposed capex is added to the costs recovered through the MAR. As such, the Chorus capex IM rules contribute to achieving the Part 6 purposes at s 162 through:
- 3.1564.1 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 costs;
 - 3.1564.2 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
 - 3.1564.3 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 regulatory period.
- 3.1565 For addressing the risk of under-investment, 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.

- 3.1566 The Chorus capex IM establishes that a key consideration in evaluating expenditure will be how it affects the quality of services provided to FFLAS end-users. Our rules further allow for an evaluation of past expenditure in a given capex category to monitor for delayed investment or repeated capex proposals. However, the Chorus capex IM cannot require expenditure, 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.
- 3.1567 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, will help to mitigate the risk that Chorus will over- or under-invest in the 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.
- 3.1568 In setting the Chorus capex IM rules, we have 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.

Section 166(2)(b) – consideration of promoting workable competition in telecommunications markets

3.1569 We considered whether the Chorus capex IM could be a tool to promote workable competition in telecommunications markets where relevant, per our obligation under s 166(2)(b). Applying the approach for assessing 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:

- 3.1569.1 affect competition in downstream (retail) telecommunications markets if they are too restrictive and thus, in their application through PQ regulation, 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, e.g. DFAS is used as an input in mobile broadband, which may compete (at the margin) with FFLAS-based retail services; and/or
- 3.1569.2 affect the emergence of competition for the provision of alternatives to FFLAS services, if the rules for approving certain categories of capex are too permissive and, in their application through PQ regulation, encourage over-investment in potentially competitive products/areas.

3.1570 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.

3.1571 The rules designed by the Chorus capex IM for scrutinising capex proposals for efficiency and potential impact on market outcomes, before the proposed capex is added to the costs recovered through the MAR, contribute to achieving the objective specified at s 166(2)(b) through:

3.1571.1 promoting competition in downstream (retail) telecommunication markets – eg, the rules for approving capex consider whether the capex is required to meet the quality standards that will be set under PQ regulation and thus encourage sufficient investment in the network to support downstream competition; and

3.1571.2 promoting competition (existing or potential) in other telecommunication markets – eg, by considering whether the proposed capex could result in raising rivals' costs through over-investment in quality or penetration.

Relevant economic principles

3.1572 In developing the Chorus capex IM we considered whether our draft decisions are consistent with the FCM principle.⁷⁰⁷ 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

3.1573 Our draft 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 timeframes, evaluation criteria and requirements for audit, certification and independent verification. The specific decisions will help Chorus to assess the effect of the IM, in line with our obligation under s 176(2).

⁷⁰⁷ For a description of the FCM principle and its relevance to Part 6, see **Chapter 2**.

3.1574 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 timeframes, information requirements, and consultation and assurance processes are designed to provide more certainty for stakeholders with confidence in the forecasts and the assessment of the proposals.

3.1575 The Chorus capex IM also promotes certainty because it fits within the overall regulatory framework, and ensures consistency with other relevant IMs, such as quality dimensions, asset valuation and cost allocation. This is discussed further below.

Length of regulatory period

3.1576 The first regulatory period for FFLAS is relatively short compared to price paths set under Part 4. 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

3.1577 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 risks that regulated FFLAS end-users bear costs not reflective of the level that efficient providers will incur when meeting end-user demands in a workably competitive market.

3.1578 The capex IM will affect the MAR and PQ path in a number of ways

3.1578.1 The capex IM describes 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.

3.1578.2 The capex allowance determined prior to the regulatory period will be used to calculate and determine the forecast MAR as part of the BBM.

3.1578.3 Actual commissioned capex during the regulatory period will go into the RAB, subject to the relevant IMs.

3.1578.4 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).

- 3.1578.5 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.
- 3.1578.6 How we apply any revenue wash-ups and revenue smoothing when determining the PQ path will affect how the difference between forecast capex approved and actual commissioned capex is treated, as well as the under and over (and timing of) recovery or revenues.
- 3.1579 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:
- 3.1579.1 by improving efficiency and delivering capex at a lower value than its forecasts;
- 3.1579.2 by investing in fewer assets than the forecast capex allowance provided for; and
- 3.1579.3 by investing in lower quality assets (ie, assets with lower specifications), which could in turn result in the provision of lower quality regulated FFLAS to end-users.
- 3.1580 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

- 3.1581 The Chorus capex IM interacts with the asset valuation IM and cost allocation IM as listed below:
- 3.1581.1 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 and the MAR in the asset valuation IM and by the rules set in the Chorus capex IM for adjusting future capex proposals in light of past over- or under-spend.
- 3.1581.2 The cost allocation IM will form part of the assumptions underpinning capex approvals for regulated 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.

3.1582 The draft decisions on the quality dimensions IM set out the dimensions for which quality standards may be set under PQ regulation. Quality standards will introduce an incentive to ensure a minimum 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 quality outcomes as part of our evaluation of those proposals.

3.1583 Throughout this chapter we refer to the Transpower capex IM.⁷⁰⁸ 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 have used the Transpower capex IM as a starting point for the Chorus capex IM and made relevant changes to ensure the Chorus capex IM suits the FFLAS market, best promotes the purpose statements in Part 6, and reflects the different incentives Chorus faces.⁷⁰⁹

Draft decisions

3.1584 This section presents our draft decisions and rationale for the following areas in the Chorus capex IM:

3.1584.1 The high-level approach / core framework

3.1584.2 Base capex proposals

3.1584.3 Connection capex

3.1584.4 Individual capex proposals

3.1584.5 Transitional arrangements for the first regulatory period.

⁷⁰⁸ Commerce Commission "Transpower Capital Expenditure Input Methodology Determination 2012 (Principal Determination)", June 2018.

⁷⁰⁹ Chorus agrees that the Transpower capex IM provides a reasonable starting point for developing information requirements, process and timeframes for a fibre capex IM. Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), page 96.

High-level approach / core framework

Introduction

3.1585 This section covers the high-level decisions on the Chorus capex IM that affect how the IM is structured and the key processes and timeframes. This section covers the following topics in the IM:

- 3.1585.1 The categorisation of different types of capex;
- 3.1585.2 The evaluation criteria we will use to evaluate different types of capex; and
- 3.1585.3 Other processes and timeframes (or components of the Chorus capex IM) that are general to the IM, including:
 - 3.1585.3.1 Consequences if we fail to meet the timeframes;
 - 3.1585.3.2 The requirement that all expenditure will be net of capital contributions; and
 - 3.1585.3.3 The requirement for an integrated fibre plan.

General explanation of topic

3.1586 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 the MAR.

3.1587 Chorus will submit a capex proposal prior to, and in some cases during, a regulatory period with forecast expenditure and justification of spend and we will assess it according to processes and rules in the Chorus capex IM (including any consultation requirements). From this assessment, the Commission will set a capex allowance for a given regulatory period.

Definition of 'capex' for the draft decisions

3.1588 For the purpose of the draft decisions, we use 'capex' to mean expenditure that would be included in the value of commissioned assets under the asset valuation IM.

Draft decision – categorisation of capex

3.1589 The Chorus capex IM will specify three different expenditure categories: base, connection, and individual capex with a number of defining characteristics as outlined below.

3.1590 **Base capex:** Base capex will incorporate all forecast capital expenditure except for expenditure types that have a high degree of uncertainty as to need, cost and/or timing.⁷¹⁰ Base capex proposals will be split into expenditure sub-categories, determined by the Commission and Chorus prior to the proposal submission. Examples of expenditure types likely to fall within base capex include UFB communal, transport, fibre network sustain and fibre lifecycle expenditure. Base capex proposals will have the following characteristics. The assessment of a base capex proposal will be primarily an ex-ante, top-down assessment of forecast expenditure.

3.1591 **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 UFB initiative brownfields, greenfields and infill connections, and Chorus-led migrations from copper to regulated FFLAS.

3.1591.1 The approval of connection capex will be split into two components:

3.1591.1.1 A baseline component of connection capex that is approved alongside base capex. Baseline connection capex will include connection capex that is regarded as relatively certain to be required over the regulatory period; and

3.1591.1.2 A variable component of connection capex that represents the balance of connections between the baseline component forecast and the total number of actual connections for each year over the regulatory period.⁷¹¹

⁷¹⁰ As described in the connection capex and individual capex categories.

⁷¹¹ To account for the uncertainty the Chorus capex IM will require Chorus to propose unit rates for connections, by connection type, along with a forecast connection volume, at the same time as the base capex proposal. Expenditure associated with actual connection volumes will be automatically incorporated into the RAB at actual cost, with the volume of new connections costed at the approved unit rates impacting the Building Block Allowable Revenue (BBAR).

3.1592 **Individual capex:** Individual capex covers larger projects and programmes, where the level of uncertainty associated with the expenditure means that it is hard to evaluate at the time of base capex approval. Examples of projects or programmes that may have these characteristics include layer 2 upgrades, IT projects and innovation projects. Individual capex proposals will have the following characteristics:

3.1592.1 Individual capex is classified as regulated FFLAS related project or programme expenditure with a value greater than \$5m where there is a degree of uncertainty. The uncertainty must mean that the cost or timing or the need for the project or programme cannot be defined or assessed sufficiently at the time of submitting the base capex proposal; or we consider that a capex allowance for a project or programme needs to be ring-fenced rather than substitutable with other base capex.

3.1592.2 There will be a staged application process for individual capex to allow for the timely approval of expenditure.

3.1592.2.1 The first stage of the application is the notification of the project or programme, then the Commission considers pre-approval of the primary elements of the expenditure.

3.1592.2.2 The second proposal stage is submission of the final individual capex proposal, for a determination from the Commission on the individual capex allowance.⁷¹²

Rationale for draft decision

3.1593 We explain here how our draft decision to categorise expenditure best promotes the purposes of Part 6 and those of the IMs and ensures the appropriate treatment for each category. Categorisation also provides greater detail and therefore improved certainty to Chorus on the processes, time frames and approach to evaluating different types of capex.

3.1594 We have made the distinction between different capex categories in the IM to cater for capex with different levels of uncertainty. This reduce the risks associated with under or over-forecasting expenditure that is uncertain at the time of setting the ex-ante base capex proposal. This enables us to best promote the s 162 purpose.

⁷¹² The proposed staged process will also allow for the specification of contingent conditions regarding the timing of the expenditure.

- 3.1595 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.
- 3.1596 Our draft decisions relating to categories of capex and the resulting flexibility to vary the rules for each category recognise that the trade-offs between promoting incentives to innovate and invest (per the purpose at s 162(a)). It also supports improving efficiency and limiting Chorus' ability to earn excessive profits (per the purposes at s 162(b) and (d)) also vary for different types of capex.
- 3.1597 Approving a capex allowance 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 needs during a regulatory period. If we approve inflated capex, then Chorus will be able to earn additional profits without improving its efficiency (compromising the outcome set out in s 162(d)).
- 3.1598 A key driver of our draft decision to categorise different types of capex is to address uncertainty about a project's need, cost 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)).
- 3.1599 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 FFLAS as a result of variations in costs 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 costs. 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).
- 3.1600 By introducing different categories of capex and different mechanisms, we can address the risk that end-users pay above the efficient level of capex while still maintaining incentives for Chorus to invest in regulated FFLAS.

Implications of the draft decision on capex categorisation for approval processes and timing

- 3.1601 We designed the Chorus capex IM to reflect Chorus' ability to control the timing of its investment decisions, and the ability to control efficiencies over time.

3.1602 Chorus is currently investing in expanding its regulated FFLAS network with a portion of the communal network and customer lead-ins⁷¹³ still to be built once the new regulatory regime begins. In addition, end-user demand for data has grown significantly creating demands for investment in network capacity.

3.1603 This suggests a significant proportion of investment for the early period of the new regulatory regime will be demand driven expenditure. There is typically increased forecast risk with demand driven expenditure compared to more regular and recurring expenditure.

3.1604 **Figure 3.10** summarises the three capex categories determined in our draft decision and their associated approval mechanisms and relative timing.

Figure 3.10: Approach to approving different capex categories in the capex IM

	Approval Prior to RP	Approval During/Post RP
Base capex <ul style="list-style-type: none"> Separated by expenditure sub-category Templates agreed before submission. Proposal submitted 14 mths prior to RP. Substitutable 	<ul style="list-style-type: none"> Propose and approve Independent verification Evaluation based on expenditure objective and assessment factors 	
Connection capex <ul style="list-style-type: none"> Connection expenditure Baseline + Variable component Volumes and unit rates by connection type by year 	<ul style="list-style-type: none"> Baseline component based on forecast volumes Pre-approval of unit rates by connection type Evaluation based on expenditure objective and assessment factors 	<ul style="list-style-type: none"> Variable component to adjust for actual volumes at pre-approved unit rates
Individual capex <ul style="list-style-type: none"> Larger projects and programmes Expenditure > \$5m threshold High uncertainty Ring-fenced 		<ul style="list-style-type: none"> Propose and approve Staged approval Independent verification Evaluation based on expenditure objective and assessment factors

3.1605 It is appropriate to approve a significant proportion of expenditure ex-ante via assessment of a base capex proposal. Ex-ante assessment creates certainty for Chorus, supports the forecast MAR approach, and creates incentives to be efficient, since:

3.1605.1 we expect Chorus' forecasts, along with our scrutiny, will improve over time and result in better forecasts;

3.1605.2 Chorus can reprioritise and substitute expenditure;

3.1605.3 Chorus can find efficiencies within a capex allowance; and

⁷¹³ As of October 2019, Chorus had connected approximately 55% of available end-user connections.

- 3.1605.4 expenditure can be included in the forecast MAR contributing to improved certainty for end-users on the maximum prices for regulated FFLAS.
- 3.1606 Submissions generally supported an ex-ante style of assessment. Some stakeholders raised concerns with reliance on information provided by Chorus. However, this issue can be addressed through other processes and rules in the Chorus capex IM such as audits and independent verification requirements, to provide additional assurance on the information provided.
- 3.1607 As Chorus is privately owned and faces some competitive threat from alternative technologies, we expect it to take a disciplined approach to developing its forecasts. This includes how it estimates the costs (through appropriate cost estimation techniques) and understands probabilities of demand and timing of project need.
- 3.1608 We have taken the view that capex should be substitutable for all capex in the base capex categories. This means that the Chorus capex IM does not include requirements that commit Chorus to deliver on investments in its base capex proposals.⁷¹⁴
- 3.1609 The ability to substitute capex between base capex categories and across years within a regulatory period will allow Chorus to prioritise its capex investments during a regulatory period, including in response to changing market circumstances, and to implement more efficient investments. We acknowledge that Chorus will be best placed to run its business processes and make decisions on investment during the regulatory period.
- 3.1610 Chorus' business decisions may involve deferring capex to later regulatory periods. Deferral of projects (even if efficient) to subsequent regulatory periods presents a risk that end-users may end up paying more for the same investment or that service quality may suffer in the short term. Quality regulation can create incentives for Chorus to invest in capex that maintains quality standards.
- 3.1611 Ex-ante revenue control will always have an element of forecasting risk. However, substitutability will reduce end-user's exposure to this risk since under- and over-spend between sub-categories within the approved allowance will not affect the MAR. This means that there is only a risk of aggregate forecast uncertainty – this risk is much lower than item by item.
- 3.1612 Customer demand (both for FFLAS connections and for data usage) will be a key input into expenditure forecasts for regulated FFLAS. This is particularly true for Chorus in the first (and possibly second) regulatory period as it continues to build the network infrastructure needed to deliver regulated FFLAS at a quality end-users demand and moves towards a steady state.

⁷¹⁴ Note that the quality standards set under PQ regulation may incentivise Chorus to deliver on investments that are linked to quality.

- 3.1613 We agree with Chorus that uptake levels are not easy to predict at this point on the network build/uptake curve and that a mechanism is needed to deal with this type of uncertainty.⁷¹⁵
- 3.1614 The regime also needs to be flexible to address changes in regulatory priorities. Initially, the regime needs to ensure that Chorus has incentives to continue to invest in network expansion and connections (while still being an efficient provider and delivering appropriate levels of quality).
- 3.1615 We have decided not to allow individual capex to be substitutable with base capex or other individual capex proposals. Individual capex proposals will be initiated by Chorus to meet a specific investment need or relate to particular capex sub-categories that we determine should be ring-fenced. This suggests the need to prioritise or defer the investment will be minimal. Having the ability to ringfence individual capex will help ensure the deliverability of these projects.
- 3.1616 We have also considered how we can be assured that no base capex is being sought in an individual capex proposal. We have addressed this issue by introducing an audit requirement for individual capex proposals. Refer to our decisions on individual capex for more information.

Our process to evaluate base capex proposals

- 3.1617 We will assess base capex proposals using a top-down assessment approach. This type of assessment will promote the purpose of Part 6 through encouraging efficient investment in the FFLAS network.
- 3.1618 The top-down approach initially focusses on the regulated provider's policies, strategies and processes. This provides us with an understanding of how Chorus says that it will manage its assets to deliver the services required by end-users. We assess Chorus' policies, strategies and processes to ensure that, if they are implemented in practice, they will produce appropriate expenditure forecasts.
- 3.1619 While we consider that it is appropriate to obtain assurance that the proposed expenditure is consistent with the expenditure objective set out in the Chorus capex IM, this does not mean that we will undertake a detailed assessment of Chorus' entire spending programme. Rather we will undertake the top-down approach, just described, supported by a limited review of selected projects and programmes.
- 3.1620 We then assess whether the development of the proposed expenditure forecast has been consistent with the policies, strategies and processes. We would do this by sampling a subset of projects and programmes. This assures us that high-level policies, strategies, and processes are being implemented consistently and that the proposed investments are justified.

⁷¹⁵ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), page 100.

- 3.1621 A further step in our top-down approach is to assess the appropriateness of the input assumptions used by Chorus when forecasting expenditure. We also intend to consider the level of confidence that can be placed on any data used by Chorus when forecasting expenditure. This will include consideration of the source, reliability and quality of the information together with the reasonableness of any assumptions made to fill data gaps.
- 3.1622 As is discussed further below, a key aspect of our expenditure assessment approach is the use of a pre-application verification of proposed expenditure by an approved independent verifier. We will agree with the independent verifier what the focus of the independent verification will be in terms of applying proportionate scrutiny and the independent verifier may determine other areas of focus in order to assess capex against the expenditure objective. This pre-application verification process is intended to promote certainty for Chorus as to how its expenditure proposals are likely to be assessed, as well as to assist us to make the most effective use of the tight statutory timeframes for evaluating capex proposals, by highlighting which areas of a proposal we should focus on.
- 3.1623 The independent verification will also use a top-down approach to verify capex proposals and assess capex against the expenditure objective. We expect that the independent verifier will also assess the application of policies and processes and the appropriateness of the input assumptions, as discussed below.
- 3.1624 We will undertake a top-down assessment supplemented by a limited bottom-up review of areas highlighted by the verifier. We expect this review will complement, rather than repeat, the verifier's assessment. For example, if the verifier's final report were to identify that Chorus does not appear to have followed its own planning standards for network or asset replacement, it would highlight this as an area that we would need to review.
- 3.1625 This approach supports our view that both our, and Chorus', priorities and focus will evolve and change over time. From our experience regulating Transpower, we have seen that having long-term expectations of outcomes helps improve efficiency and asset management over time. We expect Chorus' focus for the first regulatory period/s to be on finishing the UFB initiative network build and moving towards steady state asset management.
- 3.1626 We expect that Chorus's asset management policies and procedures will mature over time. Chorus' focus may be different in subsequent regulatory periods when the focus may be on bedding down and driving efficiencies.
- 3.1627 We considered implementing a bottom-up style assessment approach and taking a lead role in modelling and forecasting expenditure for the upcoming regulatory period. However, for the reasons above, we consider that a top-down approach to assessment of capex proposals will best give effect to the Part 6 purpose at s 162.

PQ regulation will deal with differences between forecast and actual capex

3.1628 For the capex categories that will be approved during the regulatory period, PQ regulation will determine the processes for washing up any differences between forecast and actual commissioned capex.

Providing certainty (s 174)

3.1629 The draft decision to categorise capex into different categories provides certainty 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 regulated FFLAS.

3.1630 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.

Consideration of other options

3.1631 We looked at alternative options to address demand uncertainty. However, we concluded that the connection capex category and approach represented the best balance of upfront certainty, and in-period adjustments to allow for capex variance based on actual demand. This helps ensure expenditure is efficient and that Chorus has appropriate incentives to invest in response to regulated FFLAS demand.

3.1632 We also considered a major capex approach, like the one used in the Transpower capex IM as an alternative to the individual capex category. However, we determined that the types of FFLAS projects and programmes that may have a high degree of uncertainty tended to be lower in value than the major capex in the Transpower context. Further the fast-moving nature of the telecommunications sector necessitates a streamlined approval process for these types of projects and programmes.

Draft decision – evaluation of capex proposals

3.1633 The Commission will evaluate a base capex proposal, a connection capex proposal or an individual capex proposal by considering whether the proposed expenditure meets the expenditure objective and reflects good telecommunications industry practice.

3.1634 The expenditure objective is that capital expenditure reflects the efficient costs that a prudent fibre network operator would incur to deliver regulated FFLAS at appropriate quality, during the upcoming regulatory period and over the longer term, having regard to good telecommunications industry practice.

3.1635 We propose to define good telecommunications industry practice in relation to regulated FFLAS to mean:

the exercise of that degree of skill, diligence, prudence, foresight and economic management, as would reasonably be expected from a skilled and experienced asset owner engaged in the management of a fibre access 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 size, age and technology of the relevant fibre network and domestic regulatory and market conditions, including applicable law.

Factors to consider when evaluating proposed investment

3.1636 The Commission will have regard to the following assessment factors when evaluating whether a capex proposal has met the expenditure objective:

- a. whether the proposed expenditure complies with all applicable legal and regulatory obligations associated with the provision of regulated FFLAS, including this (when made) and other relevant determinations;
- b. the potential impact of the proposed expenditure on actual or potential competition in any telecommunications market;
- c. the relationship between the proposed expenditure and quality outcomes;
- d. the extent and effectiveness of consultation and engagement with stakeholders;
- e. the deliverability of the proposed capex and the feasibility of implementation;
- f. mechanisms for controlling actual capital expenditure with respect to the proposed capex and achieving the quality outcomes;
- g. the degree of uncertainty within the proposed expenditure;
- h. the extent to which a risk-based approach has been applied;
- i. the impact that the proposed expenditure has on layer 1 regulated FFLAS;
- j. the dependency and trade-off between the proposed capex and related opex to ensure least whole of life cost for managing assets and cost-efficient solutions;
- k. the accuracy and reliability of data;
- l. The reasonableness of the:
 - i. key assumptions relied upon;
 - ii. methodologies and information used;

- iii. planning and technical standards relied upon;
 - iv. models used to develop the expenditure forecasts;
 - v. proposed approach to procurement of goods and services;
- m. The extent of:
- i. options, alternatives, sensitivity analysis and impact analysis undertaken, investigated and assessed;
 - ii. consideration of historic rates of investment; and
- n. Any other factors the Commission considers relevant.

Evaluation Approach

3.1637 In evaluating a capex proposal pursuant to this IM, the Commission may:

- 3.1637.1 take into account the views of any person the Commission has consulted with;
- 3.1637.2 take into account any other information it considers relevant; and
- 3.1637.3 engage any appropriately qualified person to assist the Commission with its evaluation.

Rationale for draft decision

3.1638 Setting evaluation criteria to be considered when approving capex enables us to meet the objectives described in s 166(2):

Forecast capex should reflect the efficient costs of a prudent supplier. Through this assessment 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)).

3.1639 The assessment factors identify the different aspects of prudence and efficiency that we consider relevant when evaluating capex proposals.

3.1640 We think that the 'prudent' network operator expenditure objective is appropriate in the telecommunications context, as the concept of prudence will take account of the industry and market context.

3.1641 The approach is appropriate when using a top-down assessment to approve expenditure that seeks assurance as to forecasts and business practices, and includes certification, audit, consultation and independent verification.

3.1642 The evaluation criteria, including the assessment factors 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 help 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.

3.1643 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 explicit evaluation factor that signals that when we are evaluating capex proposals we will consider the potential impact of the proposed expenditure on actual or potential competition in all telecommunications markets.

3.1644 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,⁷¹⁶ the Chorus capex IM will only approve/deny capex proposals. It will not commit Chorus to an investment plan (ie, Chorus can invest in what it considers necessary to deliver quality under the MAR). Through the PQ process, we could set investment targets on Chorus, however, the costs of doing so appear to outweigh the benefits at this stage.⁷¹⁷

Flexibility of approach (applying proportionate scrutiny)

3.1645 While we have consistent evaluation criteria (in the form of the expenditure objective and clarifying assessment factors), in applying them we will apply the level of scrutiny that is commensurate with the potential price and quality impacts of forecast expenditure on end-users.

3.1646 Our approach to evaluating forecast expenditure provides the Commission with a necessary level of flexibility in the degree of scrutiny to apply when reviewing capex. This helps to ensure our assessment is appropriate to the type and materiality of capex being assessed.

3.1647 The approach to applying the expenditure objective may differ depending on the type of expenditure being assessed. For example, we consider that the level of scrutiny required to assess whether UFB initiative communal capex meets the expenditure objective would be less than for other types of capex. This is because UFB initiative communal capex was a contractual requirement with CIP, has already been committed and has had scrutiny applied to the quality outputs.

⁷¹⁶ See above.

⁷¹⁷ Costs include committing Chorus (and end-users) to potentially inefficient investment if new more efficient investment options are later realised.

- 3.1648 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 large amounts of skilled contractor resource whose availability may constrain the deliverability of the project/programme. We would therefore need to scrutinise this aspect of the proposal while it may not be considered for other types of capex.
- 3.1649 Our decision on proportionality will allow us to be responsive to individual capex proposals that are relatively straight forward to assess and approve and require less time to evaluate. This is particularly important for some capex proposals where approval may need to be timely to meet investment needs.
- 3.1650 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).
- 3.1651 We have decided not to introduce an identified programme mechanism into the Chorus capex IM and thus pre-determine the information requirements and evaluation criteria for some types of base capex. Instead, we have specified that all capex proposals must meet the expenditure objective. However, as indicated above, the level of scrutiny required to meet the expenditure objective and the relevance of the assessment factors will differ for different types of capex.
- 3.1652 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.
- 3.1653 We expect that the independent verifier will consider the expenditure objective and the relevant assessment factors as part of their evaluation and apply proportionate scrutiny when completing their independent verification of a base capex 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.
- 3.1654 More information on our draft decisions on information requirements and independent verification requirements is discussed later in this chapter.

Consideration of market specific factors

3.1655 We have also considered how market factors specific to Chorus could impact on the approach taken when applying the evaluation criteria. For example:

3.1655.1 Chorus' ownership structure, including being listed on the NZX, will ensure a degree of scrutiny on Chorus capex proposals; and

3.1655.2 competition from alternative technologies (eg, mobile) may increase over time and place some competitive pressure on Chorus to be efficient.

3.1656 We appreciate that Chorus faces different operating conditions from firms operating under the Part 4 electricity regulatory regimes (such as Transpower and Powerco) where a similar regulatory regime is applied. 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 above 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, e.g. retention capex, that we need to consider.

3.1657 Our flexible approach to evaluating capex will allow us to take these incentives and market factors into account.

Consideration of alternative options and application of judgement

3.1658 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). Other techniques we considered:

3.1658.1 **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.

3.1658.2 In addition, Transpower uses the **concept of the value of loss load (VoLL)** to estimate the economic impact of planned and unplanned outages. VoLL is therefore a key input into the calculation of cost 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 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

- 3.1659 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.
- 3.1660 The combination of the definition of the expenditure objective along with the assessment factors provides sufficient information to Chorus, access seekers and end-users as to how we will undertake an evaluation of capex proposals.

There is precedent in assessing expenditure using prudent network operator and good industry practice as evaluation criteria

- 3.1661 There is precedent for using good industry practice in regulation to assess decisions made by regulated companies:
- 3.1661.1 It is a common approach used in Part 4 assessments and by regulators in Australia.
 - 3.1661.2 CIP used a best practice concept to assess UFB initiative plans from Chorus and the LFCs.
 - 3.1661.3 A similar concept was used in the FPP rulings under the Act.

Why we think it is appropriate to apply the evaluation criteria to all types of capex

- 3.1662 We consider the evaluation criteria are flexible enough to evaluate and approve all types of capex, including base capex, connection capex and individual capex proposals.
- 3.1663 We have identified a number of specific regulated FFLAS issues that we may encounter when assessing capex. These include:
- 3.1663.1 **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, investment in other LFC areas and consideration of future legislative requirements around unbundling and deregulation may also give rise to additional scrutiny for competition implications of the proposed capex.
 - 3.1663.2 **Other potentially contentious capex:** we have identified other contentious types of capex that may create challenges in assessing against an expenditure objective and require a unique approach.
- 3.1664 **Table 3.15** describes the different types of potentially contentious capex and the issues that we may need to address when assessing capex proposals from Chorus. We have considered whether our draft decisions relating to capex evaluation criteria will enable us to assess and approve capex that is in the long-term benefit of end-users.

3.1665 We consider that the majority of issues identified in **Table 3.15** relate to challenges with assessing forecasts and identifying efficient 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.

Table 3.15: Potentially contentious capex and the issues that may impact on capex assessment

Capex type	Description of issue	Proposed resolution of issue
DFAS	There is a risk that Chorus has an incentive and the ability to deter/lessen competition in downstream markets (e.g. mobile) by under-investing in DFAS and thus providing lower quality inputs to technologies that compete with FFLAS-based retail services.	We consider this issue can be addressed through quality regulation to help address potential under-investment and information disclosure reporting to highlight potential concerns with stakeholders.
Retention capex	Chorus provides financial incentives to migrate customers to the fibre network. Chorus currently capitalises these incentives. Potential issues may include that: <ul style="list-style-type: none"> • long ‘clawback’ periods for the incentive payment may disincentivise consumers from switching providers; and/or • short-term lower prices may exclude some access seekers relying on alternative technologies from competing. 	We consider that we can assess retention capex through the expenditure objective. We may request further information on Chorus’ retention costs to enable us to assess the efficient level. Chorus is also subject to a non-discrimination requirement, EOI and supply obligations under the Fibre Deeds ⁷¹⁸ and to the Commerce Act.
Regulated backhaul	This is related to the DFAS issue (described above) to the extent that ICABS, or similar type service, is required to provide DFAS. A further potential issue is targeted overinvesting to deter potential entry into the FFLAS market.	We consider that we can assess this capex using the evaluation criteria described in this chapter to approve capex that best promotes the purpose of part 6 (s166(2)). Issues relating to under-investment could be addressed through quality regulation and information disclosure reporting to highlight potential concerns with stakeholders.

⁷¹⁸ Refer to Chapter 2.

Capex type	Description of issue	Proposed resolution of issue
Network expansion	<p>Potential issues include:</p> <ul style="list-style-type: none"> • Inefficiently overbuilding by duplicating networks with LFCs; and/or • Inefficient network expansions. 	<p>We consider that we can assess this capex using the evaluation criteria described in this chapter to approve capex that best promotes the purpose of part 6 (s166(2)).</p> <p>Our approach to setting information requirements for base and individual capex proposals can help us assess this type of capex against the expenditure objective.</p>
Layer 2	<p>Potential issues include:</p> <ul style="list-style-type: none"> • over-investment i.e. excessive network upgrades to deter competition from access seekers purchasing unbundled fibre services or from alternative technologies; and/or • decisions relating to the timing of investment in layer 2 to meet end-user demand or to upgrade technology. 	<p>We consider that we can assess this capex using the evaluation criteria described in this chapter to approve capex that best promotes the purpose of part 6 (s166(2)).</p> <p>The individual capex proposal mechanism can help address issues relating to timing uncertainty.</p>
Capex that has undergone competitive processes	<p>There may be capex investments that have been subject to competitive processes or where a customer seeks an additional service or quality of service than would normally be provided by Chorus using its standard policies and processes.⁷¹⁹</p>	<p>We consider that we can assess this capex using the evaluation criteria described in this chapter to approve capex that best promotes the purpose of part 6 (s166(2)).</p> <p>We may consider applying less scrutiny to capex that has been subject to competitive processes.</p>
Treatment of UFB initiative related capex	<p>We consider that it may be appropriate to apply less scrutiny to UFB initiative capex than to other non-UFB capex given:</p> <ul style="list-style-type: none"> • The build programme is a contractual requirement with CIP and is already committed; and • CIP scrutinises quality outputs. 	<p>We consider that we can assess this capex using the evaluation criteria described in this chapter to approve capex that best promotes the purpose of part 6 (s166(2)).</p>

⁷¹⁹ This is similar to the concept of New Investment Contracts (NIC) in Transpower’s capex IM. In Transpower’s capex IM, NICs are agreements between Transpower and users of transmission services who are connected directly to the grid in respect of non-core assets or non-core grid assets. The Transpower capex IM does not apply to capex relating to NICs.

Capex type	Description of issue	Proposed resolution of issue
		We can consider applying less scrutiny to reflect the already committed nature of the UFB initiative.
Proposals for capex for assets that are likely to become competitive	<p>Chorus could propose capex that would involve investing in assets that might be subject to a deregulation review in future (for example, assets that are either delivering a service that is subject to (some) competition and/or in a geographic area that might become competitive).</p> <p>We considered whether it is appropriate for us to approve a regulatory allowance (via the Chorus capex IM process) for assets that are competitive with other services that are not regulated.</p>	<p>We consider this issue is best addressed through a deregulation review.</p> <p>It will be difficult to predict the results of any deregulation review and thus challenging to address this issue prior to any deregulation review.</p>
Proposals for capex that seek approval for expenditure that is less than we think is the efficient level to promote competition.	<p>We consider an issue could arise with types of capex that may be required to enable layer 1 regulated FFLAS that could be underfunded, including:</p> <ul style="list-style-type: none"> • System development costs • Changes to frames/space/costs etc • UFB2 initiative costs – if unbundling is proposed at the cabinet level, rather than the local exchange, it might require a second cabinet. <p>There is a potential risk if capex is not undertaken. This could be addressed by Chorus investing in adequate asset spares. Expenditure is likely to be modular and thus incremental, limiting the risk of large unmet investment need.</p>	We consider this issue can be addressed through quality regulation to address potential under-investment and information disclosure reporting to highlight potential concerns with stakeholders.
Decommissioning expenditure	<p>Chorus may decommission copper as the fibre roll out is completed. Regulated FFLAS end-users do not directly benefit from copper decommissioning; they benefit from the fibre roll out which is determined by the UFB Initiative.</p>	Under the rules in the cost allocation IM, costs incurred solely in decommissioning ⁷²⁰ assets formerly employed to provide copper services (ie, telecommunications services that are not regulated FFLAS) are not eligible to be treated as a cost of

⁷²⁰ Decommissioning refers to the withdrawal of assets from operation and hence it covers costs of scrapping, dismantling, etc. This will see the asset value removed from the unallocated RAB (if applicable).

Capex type	Description of issue	Proposed resolution of issue
		<p>constructing or acquiring a fibre asset.</p> <p>In some cases, the cost allocation IM may permit a portion of the decommissioning costs to be allocated to regulated FFLAS, subject to a cap based on unavoidable costs. To the extent that decommissioning costs are allocated to regulated FFLAS by the application of the cost allocation IM, they will be subject to the evaluation criteria set in the Chorus capex IM.</p>
<p>Level of assessment of regulated FFLAS capex vs. capex for services that are not regulated FFLAS</p>	<p>Chorus operates a network that delivers both FFLAS and services that are not regulated FFLAS (e.g., copper) in some areas. We expect future regulated FFLAS capex proposals will include a level of common capex that is associated with both types of services. This raises a challenge as to how, if at all, we will assess the component of the proposal that relates to services that are not regulated FFLAS.</p> <p>We consider that it may be appropriate to require proposals to cover information about the whole project or programme including capex that is common to regulated FFLAS and services that are not regulated FFLAS. This could include a description of the cost allocators used to forecast the regulated portion of the proposal as well. Our approach to issuing information requirements for a base capex proposal (discussed later in this chapter) will enable us to request this type of information.</p> <p>We would only approve or decline the regulated FFLAS portion of the proposal as part of our determination of the approved capex allowance. Our evaluation however would involve looking at the merits of the proposal as a whole, not just the regulated FFLAS portion, and checking that the cost allocators have been applied correctly.</p>	<p>We consider that we can assess this capex using the evaluation criteria described in this chapter to approve capex that best promotes the purpose of part 6 (s166(2)).</p> <p>Our approach to setting information requirements for base and individual capex proposals can help us assess this type of capex against the expenditure objective.</p>
<p>Assessing copper</p>	<p>We have considered the level of scrutiny we</p>	<p>The cost allocation IM chapter</p>

Capex type	Description of issue	Proposed resolution of issue
assets that are transferred over to fibre post-implementation date	<p>apply to:</p> <ul style="list-style-type: none"> • Non-FFLAS capex that was spent prior to the first regulatory period but moved into the regulated FFLAS RAB post-implementation date. • Capex for services that are not regulated FFLAS that is spent after the implementation date and moved into the regulated FFLAS RAB. 	<p>discusses this issue in more detail.</p> <p>We consider there may be good reasons for Chorus to assess using previously shared copper assets when making decisions on efficient investment. We will consider this as part of our evaluation of capex proposals.</p>
Innovation capex	<p>There is a challenge in assessing innovation capex for regulated providers. This is because:</p> <ul style="list-style-type: none"> • The benefit to consumers is potentially unknown; • There is a risk to consumers from failed innovation; and • Regulators are typically not best placed to assess the risk/benefits of potential innovations. <p>The potential scope for innovation is higher in telecommunications markets, and the amount of proposed innovation capex may be higher for Chorus than what we are used to approving for electricity sector businesses under Part 4.</p>	<p>We consider that we can assess this capex using the evaluation criteria described in this chapter to approve capex that best promotes the purpose of part 6 (s166(2)).</p> <p>Our approach to setting information requirements for base and individual capex proposals can help us assess this type of capex against the expenditure objective.</p>

3.1666 In taking into account the issues raised in **Table 3.15**, we have amended our evaluation criteria by including assessment factors to help assess capex and address issues that are specific to regulated FFLAS. These additions include:

- 3.1666.1 The potential impact of the proposed expenditure on actual or potential competition in any telecommunications market; and
- 3.1666.2 the impact that the proposed expenditure has on layer 1 regulated FFLAS.

3.1667 Our evaluation criteria will help determine what information requirements we set under a base capex proposal in addition to the minimum requirements set out in the Chorus capex IM. The type of information required to assess different capex against the evaluation criteria may vary from project to project. We have formulated the information requirements to be flexible and fit for purpose to help address the above potential issues and enable the Commission to apply a level of scrutiny commensurate to the impact of capex on the end-user. For example, we have included competition-related information as a minimum information requirement for base capex and individual capex proposals.

3.1668 We have also identified potential issues that could lead to under-investment and have downstream impacts on competition for services in other telecommunications markets. We consider that other interventions in our regulatory toolkit are better suited to address under-investment. This includes other fibre IMs such as the quality IM and the cost allocation IM as well as ID regulation. For more information, refer to our description and proposed resolution of these issues in the Table above.

Other requirements related to the high-level framework

3.1669 This section covers decisions that are applicable to all of the capex categories in the Chorus capex IM including base capex, connection capex and individual capex. These decisions include:

3.1669.1 consequences if the Commission fails to meet its time frames;

3.1669.2 all expenditure will be net of capital contributions; and

3.1669.3 an additional information requirement for an integrated fibre plan.

Draft decision - Consequences if the Commission fails to meet its time frames

3.1670 In the event that the Commission fails to meet its obligations regarding time frames, the Commission will notify Chorus and, where relevant, interested persons, of the new timeframe that applies, as soon as reasonably practicable after it believes that a timeframe applying to the Commission is not likely to be met or has not been met.

3.1671 None of our functions or decisions described in the IM determination (once made) will be invalidated on account of any Commission failure to meet:

3.1671.1 time frames applying to the Commission specified in the IM determination; or

3.1671.2 approval time frames.

Rationale for draft decision

3.1672 As per s 176(1)(d)(iii), we are required to consider and describe the consequences if the Commission does not meet its ascribed timeframes in the Chorus capex IM. We consider that notifying Chorus and interested persons of the new timeframe and being clear that none of our decisions in the determination are invalidated by our failure to meet time frames addresses this requirement.

3.1673 An alternative approach would be to default to 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.

3.1674 We will have a separate part in the IM that provides that none of our functions or decisions are invalidated by failing to meet time frames, including approval time frames.

Draft decision - All expenditure will be net of capital contributions

3.1675 All expenditure proposed by Chorus and approved by the Commission will be net of any capital contributions consistent with the rules contained in the asset valuation IM.

Rationale for draft decision

3.1676 Our decision 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 base capex proposals that is net of all capital contributions.

3.1677 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 regulatory period, it is important that the forecast capex is consistent with asset valuation rules.

3.1678 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 draft decisions relating to information requirements for a base capex proposal would enable this, if we deemed that it was necessary to collect this information to help evaluate a base capex proposal against the expenditure objective. We note that our draft decisions relating to audit requirements for a base capex proposal could also achieve a similar outcome.

Draft decision – an additional information requirement for an integrated fibre plan

3.1679 Our draft decision is to set an additional information requirement for Chorus to submit an integrated fibre plan prior to the regulatory period at the same time as the base capex proposal.

- 3.1680 The integrated fibre plan will include a collection of documents setting out Chorus' investment strategy, asset management approach, governance arrangements, forecasts, linkages between proposed capex projects and programmes and quality outcomes, and stakeholder engagement plans.
- 3.1681 For the second regulatory period onwards, the integrated fibre plan will include key updates and changes from the previous regulatory period.
- 3.1682 The components of the integrated fibre plan include:
- 3.1682.1 **Integrated fibre plan overview:** An overview of the integrated fibre plan including a commentary on forecast expenditure for the regulatory period, including past expenditure and linkages with quality, operating expenditure and delivery performance.
 - 3.1682.2 **Quality report:** A report on the linkages between forecast expenditure for the regulatory period and quality outcomes, including past quality performance / linkages.
 - 3.1682.3 **Governance report:** A report describing Chorus' organisational governance, risk management and high-level asset management approach.
 - 3.1682.4 **Demand report:** A report describing anticipated FFLAS demand, including linkages between FFLAS uptake, data growth, and types of FFLAS and forecast expenditure, including by reference to historic demand / past trends.
 - 3.1682.5 **Investment report:** A report on the asset portfolios, the investment approach to each asset class, and investment plans for the next five years, including risks and linkages to the forecast expenditure for the regulatory period.
 - 3.1682.6 **Delivery report:** A report on capex project and programme delivery and any linkages with operating expenditure and delivery performance (such as fault rates).
 - 3.1682.7 **Engagement plan** – A report outlining Chorus' proposed consultation on any aspects of their integrated fibre plan and proposed capex for the regulatory period.

Rationale for draft decision

- 3.1683 An integrated fibre plan is a collection of documents describing Chorus' forecast expenditure for the regulatory period to enable the Commission to assess the base capex proposal against the expenditure objective and clarifying assessment factors.

3.1684 The integrated fibre plan may address some of the minimum information requirements for base capex proposals set out in **Table 3.16** in the base capex section.

3.1685 We include these requirements in the Chorus capex IM, as we think there is value in Chorus providing the information we require to assess the base capex proposal, connection capex, and individual capex proposals in a holistic way. This will enable us to better assess whether the forecast expenditure is consistent with promoting the outcomes set out in s 162.

3.1686 We have separated the information that will contribute to the integrated fibre plan into 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.

Base capex proposals

Introduction and summary of draft decisions

3.1687 This section sets out and explains processes and rules relating to a base capex proposal. The base capex approval process will approve an aggregate total base capex ex-ante allowance for the entire upcoming regulatory period.

3.1688 The decisions included in this section relate to the below.

3.1688.1 Key time frames and information content for a base capex proposal.

3.1688.2 Processes and time frames for setting and agreeing information requirements.

3.1688.3 Agreeing to the form and content of the regulatory templates.

3.1688.4 Issuing information requests for a base capex proposal.

3.1688.5 Minimum information requirements.

3.1688.6 Consultation and assurance requirements:

3.1688.6.1 Independent verification requirements.

3.1688.6.2 Consultation requirements on Chorus.

3.1688.6.3 Audit and certification.

3.1688.7 Capex determination and related process requirements.

3.1688.8 Consultation obligations on the Commission.

3.1689 As noted above, the evaluation criteria based on assessment against the expenditure objective will apply to base capex proposals.

Key time frames and information content for a base capex proposal

Draft decisions

3.1690 Chorus must submit a base capex proposal 14 months prior to the start of a regulatory period.

3.1691 A base capex proposal must contain:

3.1691.1 completed regulatory templates;

3.1691.2 information related to the forecast expenditure and information request;

3.1691.3 a full independent verification report; and

3.1691.4 the required audits and certifications;

3.1692 Where Chorus considers that it has the right to confidentiality on any information it provides to the Commission with respect to the base capex proposal, it must:

3.1692.1 include the information separately to the base capex proposal; and

3.1692.2 clearly mark it as confidential.

Rationale for draft decision

3.1693 The time frames have been designed to allow sufficient time for the Commission 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 regulated FFLAS investment decisions.

3.1694 We expect that the majority of expenditure approved as base capex will have sufficient justification of the need occurring in the respective regulatory period. To cater for scenarios where we are uncertain of the timing, cost and/or need for expenditure within certain base capex sub-categories, we have introduced an individual capex approval mechanism to allow Chorus to apply for additional capex during a regulatory period when the certainty of the capex is clearer or for ring-fencing of approved expenditure.

3.1695 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:

3.1695.1 keeping the time frames for evaluating a proposal as short as possible; and

3.1695.2 introducing the connection capex and individual capex mechanisms for addressing timing and cost uncertainty.

- 3.1696 Our experience with Transpower over three regulatory periods has given us insight into the level of scrutiny and necessary timeframes for this type of analysis and decision making. We expect that scrutiny of Chorus' proposal, and associated consultation, will likely involve similar time frames even though they operate in different infrastructure sectors.
- 3.1697 We have reduced the time frames that are included in the Transpower capex IM to reflect the different combination of processes and rules, market conditions and incentives faced by Chorus versus Transpower.
- 3.1698 For example, Chorus will be required to submit an independent verification report along with its base capex proposal. We expect that including a compulsory independent verification requirement will front-load some of the assessment required and allow for shorter evaluation time frames.
- 3.1699 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.
- 3.1700 As noted in **Chapter 1**, we intend to hold a workshop with stakeholders to discuss key decisions in the Chorus capex IM. The time frames and processes for a base capex proposal is one area we plan to discuss at the workshop.
- 3.1701 We expect some elements of Chorus' expenditure forecast may be commercially sensitive, as some access seekers also compete with Chorus. To address this, we have included a requirement for Chorus to identify any confidential information in its base capex proposal. We will consider confidentiality as part of our evaluation of Chorus' proposal and form a view on what information is appropriate to be made public as part of our process to determine Chorus' base capex allowance.

Consideration of other options

- 3.1702 We considered different processes that would enable different time frames for approving base capex allowances. We considered:
- 3.1702.1 an annual capex approval process;
 - 3.1702.2 an additional base capex re-opener half-way through a regulatory period; and
 - 3.1702.3 different approval processes for different capex sub-categories with different levels of complexity and timing uncertainty.
- 3.1703 However, we consider that our decision strikes the right balance between:
- 3.1703.1 providing certainty to Chorus of their capex allowance during a regulatory period (and the impact on revenues);

- 3.1703.2 providing revenue stability and certainty to access seekers and end-users;
- 3.1703.3 being responsive to changing investment needs; and
- 3.1703.4 minimising the regulatory cost burden and administrative complexity of additional capex allowance mechanisms.

Process and timeframes for setting and agreeing information requirements

Draft decision

3.1704 We will issue an information request for a base capex proposal 22 months prior to the start of a regulatory period. The information request:

- 3.1704.1 will be based on the minimum information requirements set out in the Chorus capex IM for a base capex proposal; and
- 3.1704.2 may in part be satisfied by the information required to be provided in the integrated fibre plan as described above.

3.1705 We will agree the form and content of regulatory templates with Chorus 22 months prior to the start of a regulatory period. The regulatory templates must:

- 3.1705.1 include a list of base capex sub-categories; and
- 3.1705.2 provide for quantitative information related to the forecast in the base capex proposal.

Rationale for draft decision

3.1706 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:

- 3.1706.1 prescribing the information requirements in the Chorus capex IM eg, the approach taken in Transpower's capex IM;
- 3.1706.2 implementing a principle that Chorus must provide a proposal that justifies their expenditure plans and enables the Commission to assess information; and
- 3.1706.3 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.

- 3.1707 In our view, our approach to setting the information requirements enables us to set information requirements that are fit for purpose. The requirements will provide a sufficient level of certainty to Chorus, access seekers and end-users as to the nature of the information we may require.
- 3.1708 We expect that there will be similarities between the information requests for any two subsequent regulatory periods. This will reduce the amount of redrafting and reconsidering when determining information requirements. However, our approach allows us to keep the IM enduring and address changes to information requirements over time.
- 3.1709 Our approach puts less of a burden on Chorus than the alternative options. This is because the information requirements will be fit for purpose at the time of request. The information requirements will not include redundant information requirements that may have been retained in the Chorus capex IM.
- 3.1710 Information requirements are likely to change over time. This means that setting detailed and limited information requirements now in the Chorus capex IM may mean the value of the information gathered will diminish over time and may require reviewing and changing.
- 3.1711 We propose to evaluate expenditure against an expenditure objective, including clarifying assessment factors, while having regard to good telecommunications practice. The information required to assess against this type of evaluation criteria is potentially dynamic and is likely to change over time.
- 3.1712 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.
- 3.1713 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.
- 3.1714 We consider time frames for issuing an information request (eight months prior to the base capex proposal submission date), provides 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 14 months prior to the start of the regulatory period.

Minimum information requirements

Draft decisions

3.1715 Chorus must meet the following minimum information requirements for a base capex proposal:

3.1715.1 For each expenditure subcategory (as agreed through the regulatory templates process), Chorus will provide a breakdown of the geographic location for the expenditure within the subcategory. The geographic breakdown will include the following geographies:

3.1715.1.1 Chorus UFB initiative areas

3.1715.1.2 Chorus non-UFB initiative (rural) areas

3.1715.1.3 Chorus non-UFB initiative (LFC) areas.

3.1716 For shared expenditure categories (only partly related to regulated FFLAS), Chorus must provide information relating to components of expenditure related to services that are not regulated FFLAS to enable the Commission to assess the expenditure proposal as a whole as outlined in **Table 3.16** below; and

3.1717 Sufficient information to comply with the information request issued by the Commission 22 months prior to the start of a regulatory period. The information request for a base capex proposal will be based on the minimum qualitative information categories set out in **Table 3.16**.

Table 3.16: Minimum information categories for a base capex proposal

Minimum information categories	Example of possible information we could seek via an information request
Governance relating to proposed expenditure	<ul style="list-style-type: none"> • Internal approval milestones for each subcategory • Programme description • Policies, reports relied upon and evidence of implementation
Historic expenditure	<ul style="list-style-type: none"> • Historic expenditure for each forecast capex subcategory • Explanations of significant divergences between historic and forecast expenditure for each subcategory • Geographic breakdown of historic capex
Approach to forecasting capex	<ul style="list-style-type: none"> • Methodologies used to develop forecast including inputs relied upon • Costs and benefits of the proposed expenditure and economic analysis used to demonstrate these • Description of options considered • Description of the related opex expenditure and trade-offs made between capex and opex

Minimum information categories	Example of possible information we could seek via an information request
Procurement, resourcing and deliverability	<ul style="list-style-type: none"> • The procurement methods used for each expenditure subcategory • The relevant risks to the proposed expenditure • Evidence of deliverability testing for what will be deliverable
Relevant financial information including evidence of efficiency improvements in proposed expenditure	<ul style="list-style-type: none"> • Description of each escalator, quantum and why each was used • Description of whether any cost contingencies were used • Changes in costs since last regulatory period • Reasons for cost changes • Impact of cost changes on forecast • Efficiency assumptions and evidence of efficiency improvements over the recent period.
Asset and Network Information	<ul style="list-style-type: none"> • Information on both the condition and the risks of assets, asset classes, network areas and the network as a whole.
Competition effects - specific information for capex categories that have potential impacts on competition in FFLAS and other telecommunications markets	<p>Information requests to ascertain competition effects will vary by capex subcategory. For example, for retention capex we may request:</p> <ul style="list-style-type: none"> • Terms of spend/contract to identify who is targeted • Amount of expenditure • Unit cost assessment
Shared costs and benefits with services that are not regulated FFLAS	<ul style="list-style-type: none"> • Total expenditure values allocated to regulated FFLAS and to services that are not regulated FFLAS. • Justification of the efficiency of the total spend. • Cost allocator used, as per the cost allocation IM. • Depending on the project, we may request an audit of the expenditure request.
Capex-quality linkages	<ul style="list-style-type: none"> • Description of any capex-quality linkages in the proposal, e.g., evidence of impact on quality from proposed capex investments
Degree of consultation	<ul style="list-style-type: none"> • The extent to which Chorus has consulted with its customers and end-users on its base capex proposal and how Chorus has reflected any consultation responses in its proposal

Rationale for draft decision

3.1718 Quantitative forecast information will be provided through regulatory templates as part of the base capex proposal. The form and content of these will be agreed between Chorus and the Commission.

- 3.1719 In the asset valuation IM chapter, we discuss that we may require information on interest incurred during construction. Interest is included in the RAB only during construction and capped at a rate equal to the WACC. Once construction is finalised, and during periods when construction is suspended, interest is no longer included in the RAB. We will specify required information on interest incurred after the implementation date in the capex forecasts.
- 3.1720 We consider that the minimum information requirements are aligned with the assessment factors to consider within the evaluation criteria. Our approach also reflects that there are minimum information requirements that we will need to appropriately assess the risks inherent in any capex proposals. These include:
- 3.1720.1 Geographic related information;
 - 3.1720.2 Additional information required to assess competition risks; and
 - 3.1720.3 Information relating to services that are not regulated FFLAS capex.
- 3.1721 The information requirements aim to address information asymmetries between the Commission and Chorus and facilitate the Commission's evaluation of capex. The scope and specificity of the information provided should reveal Chorus' approach to forecasting and developing capex proposals and support the Commission' consideration of proposals. For this reason, we have also proposed implementing a principle that the information provided by Chorus should be sufficient for the Commission to evaluate the proposal against the expenditure objective having regard to the relevant assessment factors.
- 3.1722 When assessing expenditure proposals and issuing information requests, we will adopt a proportionate scrutiny approach. In practical terms, this means that the information required is commensurate to the degree of scrutiny required in our assessment based on the potential impacts on end-users. This may mean that the information required relates to a material expenditure subcategory or a perceived high-level of uncertainty in a forecast.
- 3.1723 We have also taken into account stakeholders views about being too reliant on Chorus-supplied information. This issue is common to regulatory expenditure assessments. However, we consider that we can overcome this reliance by ensuring:
- 3.1723.1 A reasonable but appropriate level of consultation by the Commission on Chorus' capex proposals;
 - 3.1723.2 Suitable use of independent verification to ensure an independent qualified third party has assessed Chorus' proposal;
 - 3.1723.3 We hold the ability to conduct in-depth assessments of capex proposals if we deem it necessary. We can also conduct any assessment deemed necessary including econometric modelling of forecasts etc.; and

3.1723.4 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.

3.1724 Regarding consultation requirements on Chorus, we propose to include an information requirement for a base capex proposal to provide information on the extent to which Chorus has consulted with its customers and end-users on its base capex proposal and how Chorus has reflected any consultation responses in its proposal.

Consultation and Assurance requirements

Draft decisions – consultation requirements for the Commerce Commission

3.1725 Once the Commission receives a base capex proposal from Chorus, the Commission will:

3.1725.1 publish the relevant proposal or application, taking into account the confidential nature of the information;

3.1725.2 make and publish a draft decision or decisions;

3.1725.3 seek the written views of interested persons on anything so published;

3.1725.4 seek the written views of interested persons on others' submissions; and

3.1725.5 if deemed necessary by the Commission, seek the views of any person the Commission considers has expertise on a relevant matter.

3.1726 As noted above, Chorus must identify any aspects of its base 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 base capex proposal.

Draft decisions – Independent verification requirements

3.1727 A base capex proposal must be verified by an independent verifier.

3.1728 Chorus must propose to the Commission, an independent verifier who can verify the base capex proposal prior to submission of a base capex proposal, ensuring that the independent verifier has sufficient time to adequately verify the base capex proposal.

3.1729 The Commission must be satisfied with the independence and capability of the proposed independent verifier to undertake the verification of the base capex proposal.

3.1730 The Commission and Chorus will agree on 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.

Draft decisions – audit and certification requirements

3.1731 A base capex proposal will require no fewer than two directors to certify that the information provided as part of the base capex proposal:

3.1731.1 is derived from and accurately represents, in all material respects, the operations of Chorus; and

3.1731.2 complies, in all material respects, with all of the information requirements for a base capex proposal.

3.1732 A base capex proposal must include a report by an auditor that states whether or not:

3.1732.1 The financial and quantitative information has been developed from the underlying systems; and

3.1732.2 Appropriate accounting standards have been applied.

Rationale for draft decisions

3.1733 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 and individual capex proposals. This section discusses the general rationale for these requirements as well as some specific discussion about base capex processes.

3.1734 We consider it important that the Commission can rely on information provided through consultation with stakeholders and by Chorus to assess capex proposals. 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. Each method provides a different type of assurance and can be used in different situations.

Commission consultation

3.1735 Consultation is appropriate to help show that the proposal reflects access seeker and end-user service requirements and quality demands (or that stakeholders have had an opportunity to provide views).

3.1736 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. We consider that there may be limitations on consultation by Chorus in relation to capex proposals including:

- 3.1736.1 the Chorus capex IM is primarily focussed 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; and
- 3.1736.2 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.
- 3.1737 However, we have implemented an ongoing requirement on Chorus to provide information to us on how it engages with its customers and how it has taken on board the results of any consultation in its investment decisions.
- 3.1738 We have also included an assessment factor that relates to the degree of consultation that Chorus has undertaken with its customers and relevant stakeholders in determining its expenditure forecasts, in the list of assessment factors that we will take into account when evaluating whether the expenditure objective has been met. A scenario is possible where we are not satisfied that a capex proposal reflects investments that will support the provision of FFLAS at a quality that reflects access seeker and end-user demands because of a lack of customer consultation.
- 3.1739 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 for submissions.

Assurance processes

- 3.1740 The rationale for base capex assurance processes is the same as for all capex categories that have the same or similar requirements. In particular, the justification for assurance processes of independent verification, certification and audit, when required for connection capex or individual capex proposals, is based on the general rationale set out here for base capex.
- 3.1741 This means that the discussion sections below on connection capex and individual capex proposals and their assurance processes will focus on the rationale for assurance requirements specific for those capex categories rather than repeating the general rationale.
- 3.1742 Assurance processes allow the Commission and stakeholders to have confidence in the information required to assess a capex proposal and provided by Chorus. The methods used for capex proposals to ensure include the below.

- 3.1742.1 **Independent verification:** 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.
- 3.1742.2 **Audits:** Appropriate when assessing whether known systems and processes (including meeting regulatory and legislative requirements) have been applied. There are different types of audits including internal audits conducted by the organisation being audited, external auditors with different forms of opinion provided (different levels of assurance).
- 3.1742.3 **Certification:** Appropriate with low materiality processes 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.

3.1743 We consider our draft decision on audits, certification, consultation and independent verification requirements in the Chorus capex IM will facilitate appropriate levels of assurance on information that is provided to us to make decisions when evaluating base capex proposals.

3.1744 Stakeholders have previously raised a number of concerns with information asymmetry and with the Commission relying solely on Chorus' provided information to make decisions on capex allowances.

3.1745 Vodafone wrote:⁷²¹

There are several options open to the Commission to mitigate this information asymmetry concern, including:

use of an independent verifier to assess any proposals sought from Chorus; ...

3.1746 Vocus stated:⁷²²

Risk of over-reliance on Chorus needs to be managed: A challenge for the Commission is ensuring it is not overly reliant on Chorus for information on costs etc. required for the PQ path determination.

⁷²¹ Vodafone "Fibre regulation emerging views cross-submission dated 31 July 2019" (12 August 2019), pages 7-8.

⁷²² Vocus "Fibre regulation emerging views: Cross-submission to Commerce Commission dated 31 July" (12 August 2019), paragraph 7.

Independent verification

- 3.1747 Our decision to require Chorus to verify a base capex proposal should promote certainty for regulated providers as to how their expenditure will be assessed, as well as assist the Commission in managing the tight statutory time frames for assessment.
- 3.1748 The Commission will evaluate all capex expenditure against an expenditure objective (as set out above). 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, would be of particular value in the assessment of information that is critical to our decision making, including forecasts of capex and demand.
- 3.1749 Stakeholders, including Chorus support independent verification requirements. 2degrees have indicated that:⁷²³

Independent Verification will be an essential component of the first PQ determination if the Commission relies on a Chorus' supplier proposal or other Chorus provided information (such as expenditure forecasts in Chorus' MP).

- 3.1750 The Commission will have regard to the independent verification of the capex proposal and will consider the extent to which they will rely on the professional opinion expressed by the verifier. The Commission, however, will need to undertake its own assessment of the proposal to make a capex allowance determination as required under the Act.

Audit

- 3.1751 We have formalised audit requirements for Chorus' base capex proposal so that we, along with access seekers, end-users and other stakeholders have confidence that the information reflects Chorus' business operations.
- 3.1752 We expect that Chorus will have certain financial statements and processes audited on a regular basis. Some of these business as usual audit processes will be similar to those needed for a base capex proposal. However, quantitative expenditure forecasts may be less regular in nature and particular to the base capex proposal. We see value in an audit of the financial systems that were used to develop the forecasts to help improve the accuracy of information provided to the Commission.

⁷²³ 2degrees "Submission in response to the Commerce Commission's fibre regulation emerging views dated 16 July 2019" (18 July 2019), pages 8-9.

3.1753 Our decision to include audit requirements for base capex related to financial and quantitative information and application of accounting standards is informed by our experience in the Part 4 context. Although Transpower is not required to undertake an external audit of its base capex, Transpower has voluntarily commissioned an external audit opinion of its base capex proposal for its last two proposals. The audits support its board certification of the proposal. This process has provided assurance to Transpower's Board that the information in the base capex proposal can be relied upon and complies with the relevant information requirements.

3.1754 We consider that such an audit process can similarly provide a valuable level of assurance to ourselves and stakeholders, as well as to the Chorus board, in the context of Chorus' base capex proposal. We think the reasons for audit requirements are particularly strong while Chorus transitions to a new regulatory regime and our understanding of the maturity of its underlying business systems is relatively low.

Certification

3.1755 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. We consider that the base capex proposal is significant enough to warrant a certification by Chorus' Board of Directors.

Base capex determination and related process requirements

Draft decisions

3.1756 The Commission 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 to provide transparency and regulatory certainty to Chorus.

3.1757 The base capex allowance determination will include an approved base capex allowance for each year of the regulatory period.

Rationale for draft decision

3.1758 The time frames provide sufficient time for the capex allowance to be included in the MAR determination.

Connection capex

Introduction and summary of draft decisions

3.1759 This section describes the processes and rules that will apply to connection capex. We have defined connection capex as expenditure associated with the connection of new end-user premises 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 regulated FFLAS.

3.1760 The Chorus capex IM specifies a separate proposal process that will assess and approve connection capex and will be submitted with the base capex proposal. 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.

3.1761 This section covers the processes and rules relating to a connection capex proposal. The decisions included in this section are:

3.1761.1 Key processes and time frames for connection capex

3.1761.2 Information requirements

3.1761.3 Assurance and other requirements

3.1761.4 Connection capex determination and related process requirements

3.1762 As noted above, the evaluation criteria based on assessment against the expenditure objective and the clarifying assessment factors will apply to connection capex proposals.

Key processes and time frames for connection capex

Draft decisions

3.1763 The assessment and approval of connection capex will be separated into two components, a baseline connection capex component and a variable connection capex component.

3.1764 The baseline component is agreed before the regulatory period and reflects the level of demand that Chorus forecasts as highly probable to occur in the regulatory period costed at approved unit rates.

3.1765 The variable component is determined after the period based on the difference between actual demand and the level of demand forecast in the baseline component costed at approved unit rates.

3.1766 Chorus must submit a proposal for the baseline connection capex component at the same time as a base capex proposal (but separate from it) to enable us to determine the baseline connection capex allowance.⁷²⁴ The baseline connection capex proposal must include the below.

3.1766.1 Forecast connection capex for each year of the regulatory period which includes:

3.1766.1.1 unit rates for connections, by connection type (excluding capital contributions);⁷²⁵ and

3.1766.1.2 forecast connection volumes by connection type.

3.1767 Chorus will submit an annual report, three months after the end of each regulatory year during a regulatory period, containing the information set out below.

3.1768 The variable connection capex allowance will be determined at the end of 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 rates, as per the baseline connection capex allowance. The process for any resulting adjustments to the Building Blocks Allowable Revenue (BBAR) will be determined as part of the s 170 determination for PQ regulation.⁷²⁶

Rationale for draft decision

3.1769 We have established a connection capex category with a baseline and variable component to account for uncertainty in FFLAS uptake and the level of copper to regulated FFLAS migrations. Handling connection capex in this way avoids the risks of under- or over-forecasting connection capex with potential implications for end-users.

3.1770 We have limited the connection capex category to 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 is to enable unit rates to be assessed and approved that are relatively uniform and well understood based on historical average connection costs. Expenditure that does not meet the connection capex definition will fall within the base capex and, in some instances, individual capex category.

⁷²⁴ Our decision is for Chorus to submit a base capex proposal 14 months prior to the start of a regulatory period.

⁷²⁵ Chorus will propose a reasonable number of different connection types where the drivers of the unit rates are significantly different - for example, between rural and urban households. The forecast capex will be net of all capital contributions.

⁷²⁶ As noted in chapter 2, any rules we do set in the IMs for wash-ups will be set out in the regulatory processes and rules IM.

Summary of stakeholder views

3.1771 We have considered views raised by stakeholders in submissions and cross-submissions relating to our approach to assessing and approving capex. Chorus stated:⁷²⁷

“We know FFLAS uptake will be a substantial driver of our PQ proposal, yet uptake levels over the first regulatory period will not be easy to predict with certainty. For the most part, this is due to demand drivers, which experience has shown are difficult for us as a network regulated provider to fully anticipate”; and

“Similarly, our network transition from copper to fibre will potentially have step-change impacts on our FFLAS expenditure. These issues are unique to us and need to be accommodated within the Part 6 framework, including by designing mechanisms that can address uncertainties.”

3.1772 We agree that the capex approval regime needs to account for uncertainty around demand. Chorus’ expenditure requirements to meet the demand for FFLAS are likely to change rapidly over time. Therefore, we consider it important to allow for flexible approval mechanisms such as the connection capex variable component (and individual capex - to be discussed in the following section).

Consideration of alternative options

3.1773 We considered four alternative options for the approval of connection expenditure.⁷²⁸ The four alternative options are:

3.1773.1 **Approval within base capex:** This option would require inclusion of connection capex within the base capex proposal, with the entire connection capex approved prior to the regulatory period. This option fails to mitigate the material risks associated with the forecasting of connection volumes and as such may result in over-recovery or under-recovery by Chorus.

3.1773.2 **Approval in conjunction with base capex, with an incentive mechanism:** This option requires ex-ante approval with the base capex plus inclusion of an incentive mechanism on the forecast connection quantities. This option also fails to mitigate the risks associated with volume forecasting, and the addition of an incentive does not mitigate the volume risk. Chorus also has limited control over the volume of connections undertaken over the regulatory period.

⁷²⁷ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), paragraphs 305 - 306.

⁷²⁸ Note, there are many permutations and combinations of these four options.

3.1773.3 **Approval of all connection capex ex-post:** This option requires Chorus to take the risk on the expenditure associated with connections, with the Commission reviewing the efficiency and prudence of the expenditure, with approval ex-post. This option fails to provide any certainty for Chorus, and as such may result in under-investment. However, to a degree any under-investment may be mitigated by the requirements around quality.

3.1773.4 **Approval of connection capex by component:** This option allows for the uncertainty associated with connection volumes and provides a level of regulatory oversight of connection costs through our upfront assessment of unit rates by connection type.

3.1774 Our review of all the primary options against the economic framework, resulted in the selection of an approval by component option as proposed within the draft Chorus capex IM. The selected option appears to best meet the requirement for certainty around recovery while mitigating the risks associated with connection volume uncertainty.

3.1775 We consider it is appropriate that Chorus submits its connection capex forecasts to the Commission for an upcoming regulatory period at the same time as a base capex proposal.⁷²⁹ We may be able to apply less scrutiny to connection capex than for other types of capex. For example, we would be unlikely to scrutinise the need for the investment, which will be primarily determined by demand from end-users. This could mean that less time is required to evaluate and approve connection capex and thus the time frames for a connection capex proposal could be shortened.

3.1776 However, we consider it will be valuable to evaluate and consider the connection capex forecasts alongside the base capex proposal. This will allow us to consider the impact of both capex proposals rather than separately. We also consider that it will be more efficient to evaluate and consult on both capex proposals at the same time.

⁷²⁹ Our decision is for Chorus to submit a base capex proposal 14 months prior to the start of a regulatory period.

Information requirements

Draft decisions

- 3.1777 Chorus will provide the following information requirements prior to the regulatory period as part of its baseline connection capex proposal.
- 3.1777.1 Forecast connection capex for each year of the regulatory period which includes:
 - 3.1777.1.1 unit rates for connections, by connection type (excluding capital contributions);⁷³⁰
 - 3.1777.1.2 forecast connection volumes by connection type.
- 3.1778 Chorus will provide the following information annually, three months after the end of each regulatory year during a regulatory period.
- 3.1778.1 The audited unit costs by connection type for the previous regulatory year;
 - 3.1778.2 Actual connection volumes by connection type for the previous regulatory year; and
 - 3.1778.3 Any updates to the forecast unit costs and connection volumes by connection type for the remainder of the regulatory period.

Rationale for draft decision

- 3.1779 In reaching this decision we have considered how best to achieve the purposes specified in s 162.
- 3.1780 The information requirements set out what is necessary to ensure we can adjust for actual demand to provide certainty for Chorus and preserve its incentives to invest, as per s 162(a).
- 3.1781 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 capex approval for the current regulatory period and baseline component approvals for the subsequent regulatory period. We plan to 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).

⁷³⁰ Chorus will propose a reasonable number of different connection types where the drivers of the unit rates are significant different - for example, between rural and urban households.

Assurance and other requirements

Draft decisions

3.1782 The baseline connection capex proposal, to be submitted at the same time as the base capex proposal, will have the same audit, verification, consultation and certification requirements as base capex.

3.1783 The baseline connection capex proposal which accompanies the base capex proposal and the annual connection capex report will be certified by the CEO of Chorus. In each case, the CEO will certify that:

3.1783.1 the information provided as part of the document being certified:

3.1783.1.1 is derived from and accurately represents, in all material respects, the operations of Chorus; and

3.1783.1.2 complies, in all material respects, with all of the information requirements for the document being certified.

3.1784 The actual volumes and unit costs provided in the annual report to the Commission will be audited by an external auditor. The auditor will state whether or not:

3.1784.1 The quantitative information has been developed from the underlying systems; and

3.1784.2 Appropriate accounting standards have been applied.

Rationale for draft decision

3.1785 The rationale for connection capex assurance processes has the same basis as other capex categories. This section discusses the general connection capex requirements as well as some processes specific to connection capex, such as director certification.

3.1786 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. This section discusses these requirements. It also discusses requirements relating to director certification.

3.1787 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. Unit costs are likely to have a significant impact on connection capex, which will be very material in the first one to two regulatory periods. We therefore consider an external audit is justifiable on cost grounds.

3.1788 We have decided not to include any independent verification requirements on the variable connection capex. 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.

3.1789 We also consider that a CEO certification of the annual connection capex report is warranted, in addition to an external audit. We consider that a certification by the CEO will provide an incentive for Chorus to implement systems and controls that will ensure the production of accurate and reliable information.

Connection capex determination and related process requirements

Draft decisions

3.1790 The Commission will issue a determination that sets the baseline connection capex allowance, at the same time as the base capex allowance determination, no later than six months prior to the start of a regulatory period.

3.1791 The determination for the baseline connection capex allowance will include the below.

3.1791.1 The total forecast connection capex allowance to be included in the MAR calculation.

3.1791.2 The forecast unit rate, by connection type used to calculate the total baseline connection capex allowance.

3.1791.3 The forecast volumes, by connection type, used to calculate the total baseline connection capex allowance.

3.1792 The baseline connection capex allowance will be used to calculate the forecast MAR. Expenditure associated with actual connection volumes will be automatically incorporated into the RAB at actual cost.

3.1793 As noted above, the variable connection capex allowance will be determined at the end of 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 rates, as per the baseline connection capex allowance. The process for any resulting adjustments to the BBAR will be determined as part of the s 170 determination for PQ regulation.

3.1794 The BBAR, grossed up for any costs that may be passed through to prices (in accordance with the IM to be specified under s176(1)(c)(i)), represents the allowable or recoverable revenue that Chorus is entitled to recover through prices. The grossed up BBAR may differ from the MAR for a specific year or regulatory period depending on revenue smoothing within and between periods. Under this arrangement, changes from differences between forecast baseline and actual connection volumes at the approved unit rates will not enter the MAR immediately. The additional recoverable revenue will be added to the BBAR which can be recovered through prices in future regulatory periods.

Rationale for draft decision

3.1795 The time frames provide sufficient time for the baseline connection capex allowance to be included in the MAR determination.

Individual capex

Introduction and summary of draft decision

3.1796 This section describes the processes and rules that will apply to individual capex proposals. The decisions included in this section are:

3.1796.1 Key processes and time frames for individual capex proposals.

3.1796.1.1 Minimum Information requirements; and

3.1796.1.2 Assurance and other requirements.

3.1797 An individual capex proposal can include any sub-categories of capex in a base capex proposal.⁷³¹ 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.

3.1798 The Commission may determine whether expenditure incorporated within a base capex proposal should instead be included in an individual capex proposal. The processes and rules for individual capex proposals will have the characteristics set out below:

3.1798.1 **Minimum threshold:** Individual expenditure will be classified as expenditure with a regulated FFLAS capex value equal to or greater than \$5m where there is a degree of uncertainty such that the cost or timing or the need for the project or programme cannot be defined sufficiently at the time of submitting the base capex proposal.

⁷³¹ 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.

- 3.1798.2 **Staged application process:** The Chorus capex IM will specify a staged application process to allow for the timely approval of expenditure. The first stage is the notification of the project or programme, and to seek approval of the key parameters, information and assurance to be included in the final proposal. The second proposal is the final individual capex proposal submitted to the Commission for an approved expenditure allowance. The staged application process will also allow for the specification of contingent conditions regarding the timing of the expenditure.
- 3.1798.3 **Commensurate review:** The approval of the individual capex proposal will be based on the proportionate scrutiny principle to ensure that the verification will be commensurate with the scale and complexity of the project or programme.
- 3.1798.4 **Linked to quality and base capex:** Within the individual capex application the impact on quality, approved base capex, and opex will need to be fully described. Review of these links will be a critical component of the approval process. The application for individual capex will be net of any pre-approved base capex.
- 3.1798.5 **Ring-fenced:** Individual capex allowances for approved projects and programmes will be ring-fenced from and not substitutable with base capex and other individual capex proposals.

3.1799 The evaluation criteria based on assessment against the expenditure objective and clarifying assessment factors will apply to individual capex proposals.

Key processes and time frames for individual capex projects

Draft decisions – proposal and approval requirements for individual capex

3.1800 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:

- 3.1800.1 Capital expenditure greater than or equal to \$5m; and
- 3.1800.2 Need, cost or timing uncertainty which impedes the assessment of the expenditure within the base capex; and/or
- 3.1800.3 The individual capex relates to an expenditure subcategory that the Commission determines should be ring-fenced.

3.1801 Chorus must notify the Commission of its intention to apply for individual capex by providing an individual capex design proposal. The individual capex design proposal will propose the information to be provided to the Commission to assess an individual capex proposal and will include a description of:

- 3.1801.1 The preliminary key parameters of the proposed expenditure, including:
 - 3.1801.1.1 the need for investment and the timing;
 - 3.1801.1.2 the assumed technical parameters for the project or programme;
 - 3.1801.1.3 a proposed plan and explanation of the degree of consultation required;
 - 3.1801.1.4 identification of an independent verifier and a proposal to conduct an independent verification that is proportionate to the materiality and complexity of the individual capex project;
 - 3.1801.1.5 identification of alternative options and any impact on quality, and previously approved base capex and opex; and
 - 3.1801.1.6 Any relevant technology development plans.
- 3.1802 The information proposed must be based on the minimum information requirements for an individual capex project proposal set out in paragraph 3.1821.
- 3.1803 proposed time frames for agreeing to the final key parameters of the proposal and the time frames for approving the individual capex.
- 3.1804 The Commission 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 the Commission receiving the application.
- 3.1805 If the design proposal is not approved, Chorus may resubmit a revised application at a later date.
- 3.1806 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.
- 3.1807 The Commission will evaluate an individual capex proposal and approve or decline the revised individual capex allowance, within the time frames agreed at the proposal design phase.
- 3.1808 The Commission will reserve the right to consult on the project or programme expenditure increase, if it determines consultation is in the long-term benefit of end-users.
- 3.1809 The individual capex project allowance determination will include:

- 3.1809.1 an approved individual capex allowance for each year of the regulatory period that reflects the approved individual capex project; and
- 3.1809.2 any reporting requirements to apply to approved individual capex.

Pass-through mechanism for individual capex

3.1810 We consider that approved individual capex applications will be added to the BBAR. This will occur once the capex has been spent and rolled over into the RAB at the next reset period. The process for washing up and smoothing will be determined at a later date.

Rationale for draft decision

- 3.1811 The primary focus of the threshold conditions is the assessment of uncertainty inherent in the expenditure. The capital expenditure threshold of \$5m has been initially set as a materiality threshold to ensure only the larger scale projects or programmes are subject to an individual capex application. There is a balance to be struck in establishing the threshold for individual capex. Too high and the mechanism will be ineffective and too low, and it will significantly impact on the efficiency and effectiveness of the regime.
- 3.1812 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.
- 3.1813 When assessing the base capex proposal the Commission may also decide that a project or an aspect of a programme should be classed as individual capex, and approved at a later date which is closer to the likely need for the expenditure or when the cost parameters are firmed up. The ability for the Commission to do this should also create some incentive for Chorus to minimise 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.
- 3.1814 We have considered views raised by stakeholders relevant to the proposed individual capex project mechanism. We received the following relevant views.

3.1815 Vodafone stated:^{732 733}

Chorus have a history of over-forecasting whenever they get the opportunity. As highlighted by Vocus and 2degrees, Chorus' initial estimates for both TSLRIC and the TSO have generally been considered opportunistic. Chorus must not be given this opportunity again.; and

Oversight of major capital expenditure is critical to balance the incentives at play in the regime. As noted by the Commission, this is particularly important where there is a risk of over-forecasting, or a risk of inefficient investment.

3.1816 We agree with Vodafone's submission that:⁷³⁴

The Capex approval regime needs to be more nimble and responsive than the major capex regime implemented under Part 4. The telecommunications sector is always rapidly changing, and the regulations need to keep pace.

3.1817 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 flexible approval mechanisms such as the connection capex variable component and individual capex.

3.1818 We considered five alternative options for the individual capex approval.⁷³⁵ The alternative options we considered are below.

3.1818.1 **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 timeframes 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 timeframes for Transpower are in the order of two to seven or more years, depending on the scale and nature of the investment. This option fails to recognise 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.

⁷³² Vodafone "Fibre regulation emerging views cross-submission dated 31 July 2019" (12 August 2019), page 7.

⁷³³ Vodafone " New regulatory framework for fibre: Submission on Fibre Regulation Emerging Views dated 16 July 2019" (18 July 2019), page 33.

⁷³⁴ Vodafone " New regulatory framework for fibre: Submission on Fibre Regulation Emerging Views dated 16 July 2019" (18 July 2019), page 5

⁷³⁵ Like the Connection Capex there are many combinations of options that could be utilised.

3.1818.2 **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.

3.1818.3 **Staged approval of expenditure.** 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.

3.1819 There are also options for establishing the threshold or thresholds for the classification of Individual Capex. These are listed below.

3.1819.1 **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 at this stage, it is proposed that the individual capex category will be optional. However, it is proposed that the Commission may require expenditure to be classed as an individual capex proposal if it considers the uncertainty associated with it is sufficient to not be included within a base capex proposal or the expenditure subcategory should be ring-fenced;

3.1819.2 **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 mandatory nature of the threshold, and the purpose of the expenditure categorisation for managing uncertainty. Accordingly, we consider that a lower threshold is appropriate and \$5m has been selected as an initial level. The option to review this amount by mid-period the first regulatory period will be included within the draft Chorus capex IM.

3.1819.3 **An uncertainty requirement:** The purpose for establishing an individual capex category is to mitigate the risks associated with the uncertainty of cost 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 proposed mechanism.

3.1820 A review of all the primary options against the economic framework, resulted in the selection of the individual capex mechanism as proposed within the draft Chorus capex IM. The selected option appears to best meet the requirement for certainty while mitigating the risks associated with uncertainty in need, cost and timing of larger projects and programmes.

Minimum information requirements

Draft decisions

3.1821 A final application for an individual capex project must include minimum information requirements for an individual capex project as set out in the Chorus capex IM.

3.1822 The information requirements for an individual capex project will reflect those approved during the application design phase and must include the following specific minimum information requirements:

- 3.1822.1 Sufficient information for the Independent Verifier and the Commission to assess the expenditure application against the expenditure objective and the relevant assessment factors as applicable in each stage of the application process;
- 3.1822.2 Evidence that appropriate internal governance including application of related policies and processes has been applied;
- 3.1822.3 Economic analysis completed to demonstrate project or programme justification;
- 3.1822.4 Any technical information and standards relied upon in the development of the expenditure application;
- 3.1822.5 Evidence of consultation, if any, carried out by Chorus on the individual capex project or programme;
- 3.1822.6 Information to demonstrate the fulfilment of any independent verifier, certification, audit, and consultation requirements;

- 3.1822.7 An explanation of the impact the expenditure will have on quality, any previously approved base capex or opex;
- 3.1822.8 Any expert reports relied upon within the expenditure application; and
- 3.1822.9 Information proposed and approved in the design application.

Rationale for draft decision

3.1823 In reaching this decision we have considered how best to achieve the purposes specified in the Act. The minimum requirements set out what information we require to assess the efficiency of individual capex proposals to promote outcomes consistent with those produced in workably competitive markets, as per s 162.

Assurance requirements

Draft decision – Independent verification, audit and certification processes

- 3.1824 An individual capex proposal must be verified by an independent verifier.
- 3.1825 Chorus must propose to the Commission an independent verifier who can verify the individual capex proposal, as part of the individual capex design proposal.
- 3.1826 The Commission must be satisfied with the independence and capability of the proposed independent verifier to undertake the verification of the individual capex proposal.
- 3.1827 The Commission and Chorus will agree on 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. The scope of the verification will be proportionate to the materiality and complexity of the individual capex proposal – i.e. we can agree a limited scope independent verification for smaller projects and programmes.
- 3.1828 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:
 - 3.1828.1 is derived from and accurately represents, in all material respects, the operations of Chorus; and
 - 3.1828.2 complies, in all material respects, with all of the agreed information requirements and key parameters for an individual capex project application.
- 3.1829 A final individual capex project application must include an external auditor report that states whether or not the expenditure proposed in the individual capex project application is additional to base capex.

Rationale for draft decision

- 3.1830 The requirement for independent verification, commensurate with the scale of the expenditure, is considered important for individual capex as:
- 3.1830.1 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;
 - 3.1830.2 The proposed expenditure could be technically complex and as such would benefit from an independent external review;
 - 3.1830.3 The scope and nature of the expenditure is difficult to determine at the time of developing the Chorus capex IM; and
 - 3.1830.4 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.
- 3.1831 Applying the principle of proportionate scrutiny to independent verification helps to identify and properly respond to areas that have a significant impact on end-users. This also allows the Commission to better resource areas of significant impact.
- 3.1832 We consider that the process for selecting the independent verifier needs to be streamlined and responsive to the investment need. We have received feedback from stakeholders that the process for approving additional in-period capex should be as streamlined and responsive as possible.
- 3.1833 We considered requiring Chorus to set up a pre-approved panel of independent verifiers that Chorus could draw upon to conduct verification of individual capex proposals during the regulatory period. We considered that this could streamline and shorten the independent verifier selection and approval process and make the individual capex process more responsive to investment need.
- 3.1834 We decided against requiring Chorus to set up a pre-approved panel of independent verifier providers. We considered it unnecessary to make this a requirement as Chorus will have an incentive to propose a suitable independent verifier in a timely manner as part of the individual capex design proposal. However, we would be supportive of Chorus if it decided to set up this panel voluntarily as we can see a number of administrative benefits from selecting and approving an independent verifier panel.
- 3.1835 Certification requirements for individual capex should be set to CE 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.

3.1836 Audit requirements should be limited to the demonstration 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.

3.1837 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.

Transitional arrangements for the first PQ path setting process

Introduction

3.1838 The Chorus capex IM has been designed to set the processes and rules that apply to all capex proposals for Chorus under the Part 6 regulatory regime. The majority of the processes and rules will apply to Chorus and the Commission from the first regulatory period onwards.

3.1839 For the first regulatory period, transitional (or different) arrangements are required for three specific processes and rules. These will apply to information and verification requirements for a base capex proposal for the first regulatory period only.⁷³⁶ These are:

3.1839.1 the time frames for issuing information requests;

3.1839.2 the time frames for agreeing to the form and content of the regulatory templates; and

3.1839.3 the requirements of an independent verification report of the base capex proposal.

3.1840 For the avoidance of doubt, where no transitional arrangements have been identified, the full requirements for the Chorus capex IM will apply for the first regulatory period.

3.1841 The transitional arrangements for the first regulatory period only are described in more detail below.

Draft decisions – process and time frames for information requests

3.1842 For the first regulatory period, the Commission will issue an information request for a base capex proposal 16 months prior to the start of the regulatory period. The information request will be based on the minimum information requirements set out in the Chorus capex IM for a base capex proposal.

⁷³⁶ No transitional arrangements will apply from the second regulatory period onwards.

Draft decisions – regulatory templates

3.1843 For the first regulatory period, the Commission and Chorus will agree to the form and content of the templates no later than 17 months prior to the start of the regulatory period. If no agreement is reached, then the Commission determines the templates within the same time frame. The regulatory templates must:

3.1843.1 include a list of base capex sub-categories; and

3.1843.2 contain quantitative information for the base capex proposal

Draft decisions – requirements for an independent verification of a base capex proposal

3.1844 An independent verification report will not be required for the first regulatory period.

Rationale for draft decisions

3.1845 The current time frames for completing the IMs and PQ regulation create potential issues for Chorus and the Commission in meeting some of the requirements for a base capex proposal for the first regulatory period. Specifically, difficulties arise for the templates and information requirements as well as the requirements for an independent verifier report.

3.1846 This issue generated strong opposing views from Chorus and access seekers. Chorus raised the potential need for transitional arrangements to be used for PQ regulation in the first regulatory period (1 January 2022 – 31 December 2024). Chorus argued that the main driver for these transitional arrangements was the time-pressure on Chorus to develop a proposal for PQ regulation and for the Commission to assess it as part of the PQ regulation determination process.⁷³⁷

3.1847 The examples of potential arrangements that Chorus suggested might address the concerns included:

3.1847.1 less granular or prescriptive information requirements for the PQ path;

3.1847.2 less scrutiny being applied to proposed expenditure;

3.1847.3 other optional mechanisms to be used, for example, resetting forecasting annually;

3.1847.4 making any independent verification requirements voluntary for the first regulatory period; and

3.1847.5 deferring the implementation of some elements of the regime (such as consultation requirements for proposals and additional incentive mechanisms) to the second regulatory period.

⁷³⁷ Chorus "Submission in response to the Commerce Commission's fibre regulation emerging views dated 21 May 2019" (16 July 2019), page 27.

- 3.1848 Cross-submissions included some additional views from stakeholders on this matter, including Vocus' view that any transitional arrangements should not be agreed through some sort of a bilateral arrangement between the Chorus and the Commission; and instead should be consulted on through public processes.⁷³⁸
- 3.1849 We do not consider that there is sufficient time for Chorus and the Commission to set up an independent verification process for the first regulatory period. We understand that Chorus has sought an external expert review of its capex proposal and proposes to submit a report along with the base capex proposal.
- 3.1850 We reserve the right to seek our own external expert opinion of Chorus' base capex proposal for the first regulatory period. This may help address concerns about not having an independent verification report for the first regulatory period.
- 3.1851 We consider that the revised time frames for issuing information requests and agreeing to the form and content of the regulatory templates provides sufficient time for Chorus to comply with the information requirements prior to submitting a base capex proposal.
- 3.1852 Our decision manages the risk that we will not have sufficient reliable information to assess and approve expenditure for the first regulatory period.

⁷³⁸ Vocus " Fibre regulation emerging views: Submission to Commerce Commission dated 16 July" (18 July 2019), paragraph 33.

Tax IM

Introduction to Tax IM

3.1853 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 draft decision is that the 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 should expect to be able to recover the tax costs that are attributable to the supply of regulated FFLAS.

Summary of draft decisions for Tax IM

Tax IM
1. Tax costs will be calculated using a tax payable approach. ⁷³⁹
2. 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.
3. Returns will be disclosed under ID regulation using a post-tax WACC and a vanilla WACC.
4. The vanilla WACC will be used to set maximum revenues under PQ regulation.
5. Debt interest attributed to the 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.
6. 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.
7. 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 (i.e. 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

8. The initial regulatory tax asset value is to be set at implementation date (1 January 2022). The initial regulatory tax asset value will be determined from the roll forward of the tax asset value of the asset from the beginning of the UFB initiative on 1 Dec 2011 and should not exceed the RAB value as at 1 Dec 2011 used to establish the initial RAB as at implementation date.
9. 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.
10. When establishing the value of initial financial losses as at implementation date, the tax methodology outlined in the tax IM will be applied from 1 Dec 2011 in this calculation.
11. Tax losses associated with the period prior to implementation date should be recognised in the year they occur. Tax losses will be carried forward to implementation date.

⁷³⁹ This approach is similar to the tax approach used for Transpower New Zealand Limited, specified airport services and gas transmission businesses. Electricity and GDBs use a different tax approach.

How we have structured this chapter

3.1854 This chapter sets out the following areas.

- 3.1854.1 General context for the tax IM including:
 - 3.1854.1.1 requirements of the Act;
 - 3.1854.1.2 our decision-making framework;
 - 3.1854.1.3 how our draft tax IM decisions fit into the wider development of IMs for regulated FFLAS; and
 - 3.1854.1.4 how the tax IM applies to ID and PQ regulation.
- 3.1854.2 Our draft decisions and reasons for the overall approach to the IM for the treatment of taxation, which is primarily affected by the depreciation deduction that is used for regulatory tax purposes.
- 3.1854.3 Our draft decisions and reasons for the form of the cost of capital that will be applied under ID and PQ regulation;
- 3.1854.4 Our draft decisions and reasons with regards to the key components of the tax IM including:
 - 3.1854.4.1 deductions for regulatory tax purposes;
 - 3.1854.4.2 the treatment of the tax position in the wider tax group;
 - 3.1854.4.3 the tax treatment of acquisitions;
 - 3.1854.4.4 establishing the initial regulatory tax asset value; and
 - 3.1854.4.5 applying the tax IM to the calculation of initial financial losses.

Context

3.1855 This section discusses the requirements of the Act and the relevant economic principles that will be considered in our discussion of our draft decision on the treatment of tax.

3.1856 It also outlines how our draft 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.

Requirements of the Act

3.1857 Section 176(1)(a)(iv) sets out the required content of the IM for the treatment of taxation:

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:

(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;

3.1858 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.

3.1859 The tax IM will also be relevant to the calculation of financial losses over the UFB period (from 1 December 2011 to 31 December 2021). The calculation of financial losses is specified in s 177(3).

(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).

3.1860 All other things being equal, to the extent that the regulatory tax allowance from 1 December 2011 to implementation date is higher (lower), the financial losses at implementation date will be higher (lower) because a higher (lower) regulatory tax allowance implies higher (lower) notional regulatory revenue for regulated FFLAS.

Decision-making framework

The promotion of the purpose of IMs: Section 174 and matters to be considered by Commission: Section 166

3.1861 An IM for the treatment of taxation 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:

3.1861.1 to the purpose in s 162; and

3.1861.2 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

3.1862 We consider that our draft 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 promoted in sections 162(a)-(c).

3.1863 In workably competitive markets, it is profits after tax that 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 that arise as a consequence of their business decisions.

3.1864 We consider that the treatment of taxation draft decisions in this chapter promote s 162(d). This is because our interpretation of 'profits just sufficient to reward investment, innovation and efficiency'⁷⁴⁰ is profits that provide an expectation of a normal rate of return over time (i.e. FCM).⁷⁴¹ By enabling regulated providers to have an ex-ante expectation of a return on capital consistent with the FCM principle, our draft decisions ensure that regulated providers are limited in their ability to extract excessive profits, per s 162(d).

⁷⁴⁰ This is one of the performance criteria established in the academic literature for evaluating whether a market is workably competitive (see paragraph 2.153 above).

⁷⁴¹ For a further discussion of the FCM principle see paragraphs 2.170-2.178 in **Chapter 2**.

3.1865 We also consider that the treatment of taxation draft decisions in this chapter are relevant to the outcomes in s 162(b)-(c).

3.1865.1 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 as a result of many other business decisions and, 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.

3.1865.2 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).

3.1866 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 borne by a regulated provider. These benefits (or costs) will be more significant in the case of major asset acquisitions rather than share purchases.⁷⁴²

3.1867 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.

3.1868 Thus, the tax effects (i.e. by changing depreciation claimable for tax purposes) of such a sale and purchase between regulated providers should not be passed through to end-users but instead should be enjoyed or borne by the regulated providers concerned.

⁷⁴² 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 seller may be subject to clawback of depreciation where the proceeds exceed the depreciated tax asset value.

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

3.1869 In developing our draft IMs for the treatment of taxation 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 draft decisions that would require us to take a different approach from the one which promotes s 162(a) – (d).

Relevant economic principles

3.1870 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 real 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).

3.1871 In reaching our draft decision 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

3.1872 When setting the tax IM, we must consider the overlap this IM has with other IMs, particularly:

3.1872.1 cost of capital; and

3.1872.2 asset valuation (including the treatment of initial financial losses).

3.1873 Our analysis includes consideration of the impact of potential decisions relating to cost of capital and asset valuation on our proposed tax IM.

3.1874 We also consider the treatment of taxation in the determination of initial financial losses. This is because our draft decision in the asset valuation IM is that the calculation of initial financial losses will be based on a building blocks methodology of which tax is one of the key building blocks.

How the tax IM applies to ID and PQ regulation

3.1875 This section outlines the way in which we propose that the IM for the treatment of taxation is to apply to:

3.1875.1 ID regulation; and

3.1875.2 PQ regulation.

Application under ID regulation

- 3.1876 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 (s 186).
- 3.1877 Under ID regulation, an IM for the treatment of taxation would only apply to the way in which profitability is reported. Among other things, it is likely that under ID regulation regulated providers will be required to disclose their returns, as this information will inform interested persons' assessment of whether regulated providers are limited in their ability to earn excessive profits (s 162(d)).
- 3.1878 We consider that interested persons would require information on returns to assess whether the purpose of Part 6 is being met and therefore, such a requirement would be a key part of satisfying the purpose of ID regulation under s 186. In implementing our draft decision, regulated providers will need to provide sufficient information in ID on the assumptions which underpin the tax calculation.
- 3.1879 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 profitability over time. The tax IM is a key input into the calculation of any return measure.

Application under PQ regulation

- 3.1880 The IM for the treatment of taxation 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.
- 3.1881 For regulated providers subject to PQ regulation underpinned by a BBM approach, tax would be one of the main building blocks in the calculation of 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 IM for the treatment of taxation.

Taxation methodology

Draft decision

- 3.1882 Our draft 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.
- 3.1883 Our draft 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.

3.1884 We prefer this methodology given its relative simplicity, its ease of understanding, and its greater transparency under ID.

Rationale for draft decision

3.1885 Tax costs are a specific cost that needs to be taken into account to determine overall profitability. They are therefore a key part of any assessment of 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.

3.1886 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).

3.1887 We expect that all regulated providers will be subject to ID regulation under Part 6. For regulated providers subject to PQ regulation, we intend 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. 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.

3.1888 Although we may make some simplifications when setting PQ paths (eg, using an aggregate RAB to set revenues), at this time we intend for ID to require regulated providers to maintain 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 happened during the preceding regulatory period.⁷⁴³

3.1889 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. We note that both these approaches to establishing tax costs have previously been used for our IMs under Part 4.

3.1890 A third option would be 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 is discussed separately.

⁷⁴³ We understand that regulated providers are required for statutory purposes to maintain detailed tax asset information. 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 at paragraph 3.280 however, we have set minimum requirements for granularity for regulatory asset valuation 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. Regulated providers will need to ensure that tax-related records can support these granularity requirements (if they do not already).

- 3.1891 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 has a combined copper, regulated FFLAS, and other related services business.⁷⁴⁴ This is expected to make the appropriate estimation of tax to be attributed to regulated FFLAS problematic. For LFCs, the use of tax paid may be complicated by ownership structures including the inherent tax implications of any changes to ownership.
- 3.1892 Tax is paid to 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.
- 3.1893 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.
- 3.1894 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 total regulatory income less expenses associated with the provision of regulated FFLAS. These 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 rules⁷⁴⁵ in a different period than under regulatory rules).

General tax approach considerations

- 3.1895 Regulated providers will generally expect their revenues to cover the tax costs that arise because of their business decisions consistent with FCM.
- 3.1896 In setting initial tax asset values at the outset of the regime, we need to be careful to avoid the creation of 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.

⁷⁴⁴ Other related services include backhaul and co-location.

⁷⁴⁵ In this chapter, tax rules means the rules applicable to a regulated fibre service 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).

3.1897 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).

Interdependencies with other IMs when estimating tax costs

3.1898 The treatment of interest for tax purposes is dependent on the general WACC methodology and parameters that we propose specifying 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. Discussion of the potential WACC methodologies that may be applied is included at paragraphs 3.1926 to 3.1934.

3.1899 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. This is discussed in paragraphs 3.1936 to 3.1941.

3.1900 Finally, there is a link between the tax calculation and asset valuation IM, in that our draft decision about whether to index the RAB will impact the formula used in the tax calculation. When the RAB is indexed, we will generally need to make an adjustment for the tax effect of revaluations. The treatment of revaluations for tax purposes is discussed in paragraph 3.1914.1.

Formula for estimating tax costs

3.1901 The generic expression that we intend to use for estimating tax costs subject to potential adjustments, is:

Total regulatory income

– Depreciation deduction for regulatory tax purposes

– Other deductions and adjustments for regulatory tax purposes (eg, deductible operating expenditure, interest)

= Regulatory taxable income

Regulatory taxable income × Corporate tax rate

= Regulatory tax cost

3.1902 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.

3.1902.1 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.

3.1902.2 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.

3.1903 There are a number of ways in which these high-level approaches can be implemented in practice.

Difference between tax payable and deferred tax approach

3.1904 The 'tax payable' approach relies on regulatory tax depreciation. The regulatory tax depreciation is underpinned by tax rules, with some modifications.

3.1905 The tax payable approach comes closest to approximating the cash flows a regulated provider would need to meet its tax obligations to the IRD for any given period. As noted above, this corresponds to the use of regulatory tax depreciation as a deduction for regulatory tax purposes (as opposed to regulatory depreciation). The approach therefore aligns with regulated provider's expectation to earn profits similar to what would be expected in a workably competitive market.

3.1906 The deferred tax approach, as specified in NZ International Accounting Standard (IAS) 12 for financial reporting purposes, incorporates a tax expense that consists of current tax payable plus a deferred tax component to reflect temporary differences such as the depreciation timing difference. A deferred tax asset or liability is then recorded in the accounting balance sheet. In order to be equivalent in NPV terms to the tax payable approach, the deferred tax approach must be implemented with the deferred tax asset or liability adjustment to the RAB value. This adjustment corrects for the over or under compensation for tax costs in present value terms that would otherwise arise.

3.1907 Depending on the asset valuation methodologies used, additional adjustments could be applied to smooth the effect of the tax charge calculated using the deferred tax method applied to the opening deferred tax balance (the tax effect of the difference between the regulatory asset value and regulatory tax values at the implementation date). For example, and future revaluations of the regulatory asset values could be smoothed. This is achieved by amortising them over the residual lifetime of the relevant assets. A deferred tax approach applying these additional adjustments is known as a modified deferred tax approach. The modified deferred tax approach has been used for EDBs and gas distribution businesses (**GDBs**) under Part 4 applies an amortisation of differences between the initial RAB and the initial regulatory tax asset value and an amortisation of future revaluations.

3.1908 While the use of the modified deferred tax approach implies a different distribution of tax costs across time to that of a tax payable approach, it is NPV-neutral. The modified deferred tax approach would ensure NPV-equivalence with the tax payable approach by:

- 3.1908.1 determining the asset value that would be used for assessing profitability under ID regulation, or for setting allowable revenues under PQ regulation, as the RAB value plus the deferred tax balance;
- 3.1908.2 adjusting the RAB value using the cumulative differences between the regulated provider's estimated 'tax payable' to the IRD in each year and the regulatory tax allowance calculated using the modified tax expense calculation;
- 3.1908.3 amortising any future revaluations over the residual lifetime of the assets; and
- 3.1908.4 amortising the difference between the initial RAB and the initial regulatory tax asset value over the residual lifetime of the assets at the date the initial values are set.⁷⁴⁶

3.1909 The modified deferred tax approach has been used for EDBs and GDBs under Part 4. The net effect on a regulated provider's cash flow of the modified deferred tax approach could be positive or negative relative to the tax payable approach. This is because the difference between regulatory depreciation (excluding depreciation on revaluations) and regulatory tax depreciation will depend on the average age of assets in the RAB.

⁷⁴⁶ The regulatory asset value and the tax asset value may diverge if the asset has been revalued, or if the regulatory asset value has been rolled-forward using a depreciation methodology that varies from the IRD's specified depreciation method. The amortisation of the difference between the initial RAB value and the initial regulatory tax asset value is taken to regulatory profit / (loss) before tax, with a record being kept of the unamortised differences. The modified deferred tax approach has been argued to have some desirable dynamic efficiency properties in respect of cash flows associated with new investment, which is relevant to s 162(a) and (b), and the initial adjustment without amortisation could potentially imply price shocks for end-users when the approach is first introduced, were it to be introduced.

- 3.1910 Regulated providers with an older asset base may be comparatively less well off, in cash flow terms, under the modified deferred tax approach than under the tax payable approach. The two approaches would nevertheless be equivalent in NPV terms to regulated providers.
- 3.1911 We note that a deferred tax approach is the mandatory approach under GAAP for most medium to large enterprises in NZ. Therefore, this approach would be familiar to firms (and auditors) and those who analyse and compare financial statements between entities. However, as indicated above at paragraph 3.1908, the deferred tax approach required for regulatory purposes to achieve NPV neutrality with the tax payable approach must be implemented with an adjustment to the RAB for the value of the deferred tax balance.
- 3.1912 When the two main approaches discussed above are compared, 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.
- 3.1913 The tax payable approach is consistent with FCM, and therefore gives effect to the purpose at 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:
- 3.1913.1 the approach is relatively simple to understand and implement;
 - 3.1913.2 it would ensure that interested persons are able to assess whether regulated providers are receiving appropriate compensation for their tax costs in each year (i.e. consistent with the purpose of ID regulation under s 186); and
 - 3.1913.3 as discussed below at paragraphs 3.1955– 3.1962, it can be implemented in a way that regulated providers retain the net tax benefits (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 IRD revisiting the tax consequences of a transaction.
 - 3.1913.4 the smoothing effect of the modified deferred tax approach is not needed because, as observed by Incenta in paragraph 1948 below, 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.

Regulatory depreciation vs tax depreciation

- 3.1914 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.
- 3.1914.1 Regulatory depreciation is the building block that provides a business with a return of the efficient level of capital used to supply regulated FFLAS.
 - 3.1914.2 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.
- 3.1915 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.
- 3.1916 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.
- 3.1917 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.
- 3.1918 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 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.
- 3.1919 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.
- 3.1919.1 *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.

3.1919.2 *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

3.1920 As part of our emerging views paper we recommended the use of a tax cost approach that provided us with the ability to track changes in tax costs over time. We also recommended the use of the tax payable approach as this approach was most reflective of the cash tax costs imposed by the IRD for the year.⁷⁴⁷

3.1921 Stakeholders generally supported our emerging view to use the tax payable approach. For instance:

3.1921.1 Enable and Ultrafast Fibre supported our emerging view to present tax as a discrete building block as it ensured that tax costs were transparent, and it helped to achieve consistency with the FCM principle. They also supported the use of the tax payable approach as being relatively straight forward, consistent with FCM, and contributing to regulatory certainty.⁷⁴⁸

3.1921.2 Chorus also supported our proposed approach for presenting tax as a building block and adopting the tax payable approach.⁷⁴⁹

3.1922 Incenta also highlighted the smoothing effect of the modified deferred tax approach, noting that it preferred tax payable approach because:

3.1922.1 there is already a mechanism in the Act – as well as the more general ability to apply flexible depreciation – to smooth the overall cost of service associated with FFLAS over time, where this is desired;

3.1922.2 the smoothing effected by the tax mechanism is likely to smooth in the wrong direction; and

3.1922.3 the tax smoothing mechanism involves complexity that is not justified in this context.⁷⁵⁰

⁷⁴⁷ Commerce Commission "Fibre regulation emerging views - Technical paper" (21 May 2019), paragraphs 864 – 865

⁷⁴⁸ Enable and Ultrafast Fibre "Fibre Emerging Views submission" (16 July 2019), page 24

⁷⁴⁹ Chorus "Fibre Emerging Views submission" (16 July 2019), paragraph 354

⁷⁵⁰ Incenta for Chorus "Fibre Emerging Views submission – Taxation and the WACC report" (July 2019), page 1

Alternative approaches considered: Pre-tax approach to setting PQ paths

3.1923 In our emerging views paper, we also considered a pre-tax approach to setting PQ paths.⁷⁵¹ We noted that this approach was not our preferred methodology and that it had several potential disadvantages compared to the tax payable approach including:

- 3.1923.1 the challenges of appropriately transforming a post-tax approach to a pre-tax approach especially where the regulatory WACC or annuity may be applied to a number of regulated providers; and
- 3.1923.2 that any departure from a recognised accounting method for setting revenues, like the pre-tax revenue approach, would entail establishing a method for appropriately disclosing the outcomes of such an approach under ID. This means that any analytical simplifications may require additional bespoke ID rules to deal with unusual or one-off events that have significant tax impacts.

3.1924 We considered 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 transparently disclosed.

3.1925 As discussed above, stakeholders generally supported our use of tax payable approach and no stakeholder indicated a preference for using a pre-tax methodology.

Vanilla versus post-tax WACC

Draft decision

3.1926 Our draft 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.

3.1927 Consequently, under ID, we consider that returns should be disclosed on both a vanilla WACC and a post-tax WACC basis. The disclosure of returns using the vanilla WACC is required by our draft decision as this is the most accurate measure of return in the presence of tax losses and allows accurate comparisons of performance across regulated providers.

3.1928 Our draft decision is to require also the disclosure of returns using the post-tax WACC as this is likely to be the approach most familiar to interested persons in New Zealand.

⁷⁵¹ Commerce Commission "Fibre regulation emerging views - Technical paper" (21 May 2019), paragraphs 923-930.

Rationale for draft decision

3.1929 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.

3.1859. When tax is provided in a separate building block for revenue setting purposes then there are two options available.

3.1929.1 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.

3.1929.2 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.

Stakeholder views

3.1930 In our emerging views paper, we proposed the use of post-tax WACC for disclosing returns under ID and for setting the MAR for regulated providers under PQ regulation.⁷⁵²

⁷⁵² Commerce Commission "Fibre regulation emerging views - Technical paper" (21 May 2019), paragraphs 933 - 934

3.1931 Stakeholders generally supported the use of the post-tax WACC for the disclosure of returns under ID.

3.1931.1 Enable and Ultrafast Fibre supported the disclosure of post-tax returns for ID, because it is a common return measure which is readily understood by stakeholders, noting it is preferable to the vanilla return measure for this reason.⁷⁵³

3.1931.2 Chorus also considered that it was appropriate for returns under ID to be disclosed using a post-tax cost of capital.⁷⁵⁴

3.1932 Incenta Economic Consulting for Chorus did not support our proposed use of the post-tax WACC when setting maximum revenues under PQ regulation:⁷⁵⁵

3.1932.1 Incenta noted that a difference between the use of a post-tax WACC and vanilla WACC will arise where a firm is making tax losses and those losses are assumed to be carried forward. In this case the vanilla WACC will provide the correct measure of return unless an explicit (and complex) adjustment is made to the post-tax WACC calculation.

3.1932.2 Assuming that the interest deduction under a vanilla WACC is calculated on the basis of the benchmark gearing level, then the only difference in substance between using a post-tax WACC and vanilla WACC for ID is where the activities are making tax losses and these tax losses are carried forward. In this situation, the unadjusted post-tax WACC will overstate the returns being made because it overstates the value of the tax deductibility of interest.

3.1932.3 For the setting of revenues, Incenta considered that the vanilla WACC should be applied as this is the most straight forward and transparent means of dealing with firms in a tax loss situation.

3.1932.4 For ID, Incenta considered there were benefits in the headline target return and actual return being as simple as possible for interested parties to understand, which would imply using a post-tax WACC. In situations where tax losses are being made, Incenta considered this could be explained and quantified in the comments that accompany the ID disclosures.

⁷⁵³ Enable and Ultrafast Fibre "Fibre Emerging Views submission" (16 July 2019), page 24

⁷⁵⁴ Chorus "Fibre Emerging Views submission" (16 July 2019), paragraph 354

⁷⁵⁵ Incenta for Chorus "Fibre Emerging Views submission – Taxation and the WACC report" (July 2019), page 13 - 14

Our response to stakeholder views

3.1933 We agree with Incenta's analysis of the difference between the use of the post-tax WACC and vanilla WACC in a situation where tax losses have been or are likely to be made. Therefore, our draft decision is for the MAR under PQ regulation to be set using the vanilla WACC.

3.1934 For ID, our draft decision is to use both vanilla WACC and post-tax WACC when disclosing returns because:

3.1934.1 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

3.1934.2 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).

Key Components of the IM for the treatment of taxation

3.1935 The key components of the draft decisions relating to the IM for the treatment of taxation are:

3.1935.1 deductions for regulatory tax purposes;

3.1935.2 the treatment of the tax position in the wider tax group;

3.1935.3 the tax treatment of acquisitions from other regulated entities;

3.1935.4 establishing the initial regulatory tax asset value; and

3.1935.5 the tax methodology to be applied when setting the value for the initial financial loss asset.

Deductions for regulatory tax purposes

Draft decision

3.1936 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.

3.1937 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 draft decision

- 3.1938 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 (i.e. the IMs have precedence). Our draft decision is that the regulatory accounts, and the revenue and expenses used to derive regulatory net income, would be found by applying the cost allocation IM to the operating costs and asset values associated with regulated FFLAS supplied by regulated providers.
- 3.1939 Given that we do not propose 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.
- 3.1940 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.
- 3.1941 Our draft 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 for the non-loss RAB. 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). The leverage for the financial loss asset is affected by the underlying nature of concessionary Crown financing, where this financing is debt. The deductible cost of debt will be consistent with the treatment of the benefit of Crown financing set out in the asset valuation IM.

Stakeholder views

- 3.1942 Our draft decision is broadly consistent with what was set out in our emerging views paper which was generally supported by stakeholders.
- 3.1943 Enable and Ultrafast Fibre supported maintaining consistency between the notional interest costs for regulatory tax purposes and the debt assumptions in the regulatory WACC. They considered this to be common regulatory practice, consistent with FCM.⁷⁵⁶

⁷⁵⁶ Enable and Ultrafast Fibre "Fibre Emerging Views submission" (16 July 2019), page 24

3.1944 Chorus also supported this approach noting that an assumed (notional) level of leverage is essential for remaining consistent with our logic for arriving at the leverage level assumed in the cost of capital estimate.⁷⁵⁷

Treatment of tax position in the wider tax group

Draft decision

3.1945 The tax position in 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.

Rationale for draft decision

3.1946 In our emerging views paper, we indicated "that past tax losses should not be carried forward or included in the calculation of the value of the loss asset as we expect that by implementation date, tax losses from the fibre rollout will have been used by Chorus and the other LFCs to offset profits in other parts of the business or group."⁷⁵⁸

3.1947 Enable and Ultrafast Fibre indicated that they expected regulatory tax losses to be rolled forward through the historical period, and for any unused tax losses at implementation date to be included as an opening tax loss balance. They noted that it was not appropriate to assume away tax losses, as suggested in the emerging views paper.⁷⁵⁹

3.1948 Incenta also disagreed with our proposal:

The Commission does not provide a clear reason as to why it is appropriate to take into account the potential for tax losses to be used in other parts of the business when calculating the value of the loss asset (assuming that we have accurately captured its position). The Commission's discussion suggests that this position would be consistent with how it regulates other firms under Part 4 (of the Commerce Act); however, this statement is incorrect. The Commission's practice under Part 4 is to assume that any tax losses from the supply of the regulated service are carried-forward within the regulated activity, and hence only utilised once there is sufficient taxable profit in the regulated activity. This practice is applied to the calculation of price controls for EDBs, GDBs and GPBs and in ID for the airports. The Commission acknowledged in this context, that there was no obvious gain in efficiency from requiring any benefit from using tax losses elsewhere in a corporate group to be recognised when deriving regulated prices or computing ID returns.⁷⁶⁰

⁷⁵⁷ Chorus "Fibre Emerging Views cross-submission" (31 July 2019), page 45

⁷⁵⁸ Commerce Commission "Fibre regulation emerging views - Technical paper" (21 May 2019), paragraph 871

⁷⁵⁹ Enable and Ultrafast Fibre "Fibre Emerging Views submission" (16 July 2019), page 24

⁷⁶⁰ Incenta for Chorus "Fibre Emerging Views submission – Taxation and the WACC report" (July 2019), pages 15 - 16

3.1949 Spark submitted that “the past losses is all about losses incurred, and if these are set off against profits then Chorus has had the benefit of those losses. Accordingly, the losses benefit should be taken in the year they were established.”⁷⁶¹

3.1950 Vodafone submitted:⁷⁶²

There is broad support across the entire industry that the tax benefit of any losses must be accounted for. This is particularly critical during the losses period. This is also acknowledged by the LFCs despite it potentially reducing their overall revenue allowances. This makes it even more baffling that the Commission’s emerging view ignored this benefit.

A smaller residual concern remains as to how the time value of money should be applied to the tax benefit from losses. In a workably competitive market, any time value of money benefit would be passed on to end-users, and this same approach must be applied to the LFCs.

The LFCs requested that the tax benefit be carried forward until it is used to offset future tax costs of fibre services. This assumes that fibre is a stand-alone business, which is inconsistent with many other assumptions in the regime. If the tax benefit was able to be absorbed by another part of the LFCs business, it must be applied as such in the regime, and treated as a revenue item in the year incurred.

However, there may be some cases where the other parts of an LFC’s business cannot fully absorb the tax benefit. In these cases the time value of money benefit of transferring the tax benefit into future years must be accounted for. The same discount rate should be applied as elsewhere in the regime, which under the Commission’s current assumptions is the full WACC rate.

3.1951 Having considered stakeholder views, we agree that tax losses should be recognised and be notionally carried forward until there is sufficient taxable profit in the regulated business.

3.1952 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.

3.1953 Under this approach, end-users will be slightly worse off (ie, they would experience marginally higher prices) but only 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 impact to be material.

⁷⁶¹ Spark “Fibre Emerging Views submission” (16 July 2019), page 20

⁷⁶² Vodafone “Fibre Emerging Views cross-submission” (31 July 2019), pages 6 - 7

3.1954 We consider that this approach should be applied consistently both pre-implementation date (over the UFB initiative) and post-implementation date. The NPV of post-tax income for regulated providers does not change with the choice of carrying forward or utilising tax losses. However as discussed below at paragraphs 3.1981 – 3.1985 there may be a difference in prices.

Tax treatment of acquisitions from other regulated entities

Draft decision

3.1955 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 (i.e. from another regulated provider under Part 6 or from a supplier of services regulated under Part 4).

Rationale for draft decision

3.1956 To implement the proposed 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.

3.1957 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.

3.1958 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 (i.e. not be adjusted to reflect the transaction price, which is how the tax asset value would be recognised under tax rules in most cases).

3.1959 Although this departs from the approach under tax legislation, the merits of this proposed approach are that:

- 3.1959.1 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);
- 3.1959.2 excessive profits and incentives to pay a significant premium over RAB are limited by ignoring any acquisition premium (ie, post-sale RAB is equal to pre-sale RAB), consistent with s 162(d); and
- 3.1959.3 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).

- 3.1960 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.
- 3.1961 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).
- 3.1962 This option is not favoured on the basis that 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 draft IM decision.

Establishing the initial regulatory tax asset value

Draft decision

- 3.1963 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.⁷⁶³
- 3.1964 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 draft decision

- 3.1965 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. As indicated in paragraph 3.1896, we must be careful to avoid the creation of windfall gains or losses when setting the initial tax asset values, as doing so could be inconsistent with s 162(d) and (a) respectively.
- 3.1966 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.

⁷⁶³ To the extent that tax rules allow a choice in the roll forward of the tax asset value (or in any tax other matter), a regulated provider should apply the approach that was actually used in practice, or, where required to make a forecast, the approach they intend to use.

3.1967 The size of the effect from a change in the tax asset value (on revenues) is smaller than the effect caused by a change in RAB values. The reason for this is that the effect of a change in regulatory tax asset values on regulatory allowances and costs is determined by the corporate tax rate. A one dollar decrease in the regulatory tax asset value will lower tax depreciation deductions by one dollar in the future, meaning that the regulated provider will be assessed as paying tax of 28 percent at the current corporate tax rate on one more dollar of revenue.

Stakeholder views

3.1968 In our emerging views paper, we indicated “that the initial regulatory tax asset value should equal the lesser of the value recognised under tax rules for the relevant assets (or share of assets used to supply the regulated services), and the initial RAB value.”⁷⁶⁴

3.1969 We considered 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. Eliminating obvious differences also means that we do not have to look at any transactions prior to the UFB initiative (1 December 2011).

3.1970 Enable and Ultrafast Fibre supported determining the opening regulatory tax book value using the corporate tax book value (established under the Income Tax Act 2007) for the regulated FFLAS assets included in the RAB as they considered this to be a low-cost approach which avoids unnecessary complexity. They also noted that this approach provides a tax allowance consistent with the principle that tax rules are applied to the regulated service.⁷⁶⁵

3.1971 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. However, Chorus considered that the cap should be applied from the start of the UFB initiative rather than the implementation date.⁷⁶⁶

⁷⁶⁴ Commerce Commission "Fibre regulation emerging views - Technical paper" (21 May 2019), paragraph 943

⁷⁶⁵ Enable and Ultrafast Fibre "Fibre Emerging Views submission" (16 July 2019), page 24

⁷⁶⁶ Chorus "Fibre Emerging Views submission" (16 July 2019), page 132

3.1972 Incenta for Chorus noted that since the building block approach is being applied back to the commencement of the UFB initiative to calculate losses (December 2011), it is more appropriate to set the opening tax asset value at this date (and apply the cap on the value at this time) rather than deferring this step until the implementation date.⁷⁶⁷

Our response to stakeholder views

3.1973 We agree with Chorus' proposal to roll the value of the regulatory tax asset from 1 December 2011. We recognise that under the Tax Administration Act 1994,⁷⁶⁸ businesses are only required to keep information for reporting purposes for seven years. However, given that regulated providers have proposed this approach, we assume that this information is available.

Tax methodology to apply when setting the value for the initial financial loss asset

Draft decision

3.1974 In respect of the calculation of the value of initial financial losses that have been incurred by regulated providers, we would expect that any tax methodology outlined in our final IM decision would be applied from the start of the UFB initiative rollout (ie, from 1 December 2011) to determine the value of initial financial losses as at implementation date, subject to the tax allowance reflecting the actual tax costs. That is, the tax methodology that is to be applied to regulated provider cash flows ex-ante would also be applied to the determination of losses up to the start of the regime.

3.1975 The value of any tax losses over the period from the start of the UFB initiative (ie, from 1 December 2011) to implementation date should be recognised by the regulated provider in the year they occur. Tax losses will be carried forward to the implementation date.

Rationale for draft decision

3.1976 The Act requires us to consider the value of initial financial losses by regulated providers for the period of the UFB initiative (1 December 2011) up to implementation date (s 177(2)). Our draft decision under the asset valuation IM is that these initial financial losses are determined by applying a building blocks approach for the years reflecting the UFB initiative period up to the implementation date.⁷⁶⁹

⁷⁶⁷ Incenta for Chorus "Fibre Emerging Views submission – Taxation and the WACC report" (July 2019), page 14 - 15

⁷⁶⁸ Section 22(2B) subject to section 22(5)

⁷⁶⁹ See paragraphs 3.155 - 3.158

Stakeholder views

3.1977 In our emerging views paper, our preferred approach was as follows:

- 3.1977.1 when establishing the value of initial financial losses as at implementation date, the tax methodology outlined in our final tax IM decision would be applied from December 2011 in this calculation; and
- 3.1977.2 past tax losses associated with the period prior to implementation date will not be carried forward.

3.1978 Enable and Ultrafast Fibre supported applying the regulatory tax method retrospectively for the calculation of the loss asset and considered this to be consistent with the building block approach being used to calculate the value of the financial losses.⁷⁷⁰

3.1979 However, as discussed in paragraphs 3.1947 to 3.1950 stakeholders disagreed with the treatment of tax losses during the implementation period.

Our response to stakeholder views

3.1980 Consequently, we have revised our view about the treatment of tax losses such that our draft decision is that regulated providers can carry forward the value of any unutilised tax losses.

3.1981 There are two options for treatment of tax losses prior to implementation date:

- 3.1981.1 to recognise the benefit of the tax losses in the year they occur which would assume they could be utilised in the wider tax group; or
- 3.1981.2 to recognise the benefit of the tax losses in the year they can be used up by the notional regulated business.

3.1982 Under PQ regulation, higher financial losses at implementation date lead to higher maximum revenues post-implementation date (and vice versa). Conversely, higher tax losses at the implementation date, arising from the option to defer tax losses until they can be used up, lead to lower MAR post-implementation date. This is because the tax allowance building block post-implementation will be reduced until the tax losses carried forward have been utilised.

3.1983 On the other hand, lower tax losses at the implementation date, arising from the option to recognise tax losses in the year they occur, will lead to higher MAR post-implementation date. The difference between the two approaches is simply one of timing. The value of the difference will just be the time value of money of the deferral of the tax loss benefit, not the entire benefit itself.

⁷⁷⁰ Enable and Ultrafast Fibre "Fibre Emerging Views submission" (16 July 2019), page 24

3.1984 As discussed above at paragraphs 3.1952 – 3.1954, we prefer to recognise the benefit of the tax losses in the year they can be used by the notional regulated provider because there is not a clear case for taking into account the tax position in the wider tax group.

3.1985 Under this approach, end-users will be slightly worse off (ie, they would experience marginally higher prices) but only to the extent of the time value of money relating to the tax effect of the deferral of losses. In this case, it would be the time value impact of deferring by a maximum of ten years the recognition of the tax loss (or 28 percent of any actual loss recognised over the rollout period). Again, we do not consider this impact to be material.

4. Next steps

We want to hear your views on our draft decisions

- 4.1 We invite submissions on this paper from all interested parties, including fibre service providers, access seekers and end-users. We are seeking submissions on any aspect of our draft decisions.
- 4.2 We have not identified specific questions for submitters so that submitters do not feel constrained on the matters they can discuss in their submissions. If possible, submissions should be structured according to IM (in line with the structure of this document).
- 4.3 We invite submissions on this paper from all interested parties, including fibre service providers, retail service providers and end-users. We are seeking submissions on any and all aspects of our draft decisions.
- 4.4 We have not identified specific questions for submitters so that submitters do not feel constrained on the matters they can discuss in their submissions. If possible, submissions should be structured according to methodology (in line with the structure of this document).
- 4.5 Please make your submission via the Commission's fibre IMs project page by **5pm 28 January 2020**.⁷⁷¹ The project page will direct you to a form with instructions on how to upload your submission. Your submission should be provided as an electronic file in an accessible form.
 - 4.5.1 We will then provide the opportunity for interested parties to provide views on the submissions on our paper by inviting cross-submissions. You will then have until **5pm 12 February 2020** should you wish to make a cross-submission.

Confidentiality

- 4.6 The protection of confidential information is something the Commission takes seriously and in order to continue to protect confidential submissions we are trialling a new submission process. This will require you to upload your submission via the form on the project page. The process requires you to provide (if necessary) both a confidential and non-confidential version of your submission and to clearly identify the confidential and non-confidential versions.

⁷⁷¹ You can find our fibre IMs project page here: <https://comcom.govt.nz/regulated-industries/telecommunications/projects/fibre-input-methodologies>

- 4.7 When including commercially sensitive or confidential information in your submission, we offer the following guidance:
- 4.7.1 Please provide a clearly labelled confidential version and public version. We intend to publish all public versions on our website.
 - 4.7.2 The responsibility for ensuring that confidential information is not included in a public version of a submission rests entirely with the party making the submission.
- 4.8 If we consider information disclosed in the confidential version to be in the public interest, we will consult with the party that provided the information before any such disclosure is made.

Consultation process going forward

- 4.9 We plan on undertaking the following steps ahead of determining the IMs:⁷⁷²
- 4.9.1 **11 December 2019:** Publish the draft determination (which will reflect the draft decisions set out in this paper).
 - 4.9.2 **Date TBC:** We intend to workshop focussed on the Chorus capex IM following the publication of this paper, and the draft determination.
 - 4.9.3 **March 2020** (date TBC): Publish draft decisions on the regulatory processes and rules IMs.
 - 4.9.4 **May 2020** (date TBC): If required, publish a technical consultation, to seek stakeholder views on the text of an updated draft determination, to ensure it gives effect to our policy decisions.
- 4.10 We then intend to publish our final determination and reasons in **July 2020**. For the avoidance of doubt, we intend to include the regulatory processes and rules IM as part of the final determination.

⁷⁷² You can find any future updates on our process to determine the IMs for regulated FFLAS on our Fibre IMs project page: <https://comcom.govt.nz/regulated-industries/telecommunications/projects/fibre-input-methodologies>

5. Attachments

Attachment A: Glossary of terms

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
FPP	Final pricing principles for UBA and UCLL
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
IMs	Input methodologies
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
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 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
Proposed approach paper	New regulatory framework for fibre - Invitation to comment on our proposed approach (9 November 2018)
RAB	Regulated asset base
Regulated FFLAS	Means the services described in respect of persons subject to information disclosure regulation in regulations made 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) ⁷⁷³
Services that are not regulated FFLAS	means: (a) telecommunications services that are not regulated FFLAS; (b) any Part 4 regulated service; or (c) 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
UBA	Unbundled bitstream access
UCLL	Unbundled copper local loop
UFB initiative	Has the same meaning as defined in s 5 of the Act

⁷⁷³ All references to the purposes of s 166(2) in this paper include the purposes in both s 166(2)(a) and s 166(2)(b)

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: Asset Valuation – further information on application of asset valuation IM under ID regulation

- 5.1 In this appendix we provide additional context for how the asset valuation applies under ID regulation. We focus on key differences between PQ and ID regulation.
- 5.2 Some of the differences between PQ regulation and ID are:
- 5.2.1 the focus of PQ regulation is setting a forward-looking PQ path, using forecast information. On the other hand, ID regulation will use past or historical information on actual performance;
 - 5.2.2 ID regulation aims to ensure that sufficient information is readily available to interested persons to assess whether the purpose of Part 6 is being met.⁷⁷⁴ This may include information that helps assess whether requirements in the IM are being properly applied. Disclosed forecasts can provide incentives for service providers to act in accordance with the objectives of the Act; and
 - 5.2.3 additionally, 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 are not considered further here.
- 5.3 Regulated providers regulated under ID 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:
- 5.3.1 change prices to respond to market conditions;
 - 5.3.2 seek higher or lower levels of uptake; and
 - 5.3.3 seek higher or lower revenues and returns over a particular period.
- 5.4 To set prices, regulated providers subject to ID will determine the approach they will take to pricing, including what inputs to use in pricing (eg a depreciation profile).
- 5.5 This is different to regulated providers subject to PQ regulation. As set out above, they propose a depreciation method in their PQ proposal, and we will determine the method. Regulated providers subject to ID are required to index their RAB.
- 5.6 Given that ID must provide sufficient information to interested persons to assess whether the purpose of Part 6 is being met, we need to set out what degree of information will be “sufficient”.

⁷⁷⁴ See s 186 of the Act.

- 5.7 Our assessment of the issues for ID under Part 6 is that they are very 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:
- 5.7.1 not be subject to limits set by the Commission on price or revenue; and
 - 5.7.2 be free to set prices based on their own choice of depreciation method and asset life.
- 5.8 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.

Attachment C: Asset Valuation - Treatment of intangibles

5.9 This appendix explains the draft decisions for the regulatory treatment of the following types of intangible assets:

- 5.9.1 goodwill;
- 5.9.2 working capital;
- 5.9.3 interest during construction;
- 5.9.4 easements; and
- 5.9.5 right of use assets.

Treatment of goodwill

Draft decision

5.10 Our draft decision is to exclude goodwill from the RAB.

Rationale

5.11 GAAP provides for four circumstances of acquisition and the measurement of asset costs:

- 5.11.1 acquisition of assets in a business combination;
- 5.11.2 acquisition of a single asset by paying cash;
- 5.11.3 acquisition of a single asset by exchange of other assets; and
- 5.11.4 acquisition of assets from a related party.

5.12 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.

5.13 The difference in value is usually attributed to ‘goodwill’ and is recognised in the financial statements of the acquirer as an asset.⁷⁷⁵ 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.

⁷⁷⁵ 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’.

- 5.14 In workably competitive markets, service providers generally cannot earn additional returns simply as the result of the goodwill included in their payments to acquire 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.
- 5.15 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 draft decision to exclude goodwill from the RAB therefore best gives effect to the Part 6 purpose at s 162.⁷⁷⁶
- 5.16 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.
- 5.17 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 interest during construction

Draft decision

- 5.18 Our draft decision is that regulated providers:
- 5.18.1 must exclude from their RAB values any assets (ie, working capital) that attract interest during construction;
 - 5.18.2 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;
 - 5.18.3 must not apply capitalised financing costs to capital contributions, if they are received.

Rationale

- 5.19 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. As working capital is an intangible asset that is monetary, regulated fibre providers must exclude working capital from their RAB values.

⁷⁷⁶ Note that the same rule applies to service providers regulated under Part 4.

- 5.20 Fibre service providers subject to both ID and PQ 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.⁷⁷⁷
- 5.21 For regulated fibre providers subject 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.⁷⁷⁸
- 5.22 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 such a reduction is not already made under GAAP, and where the revenue has not already been reported as income under ID).

Treatment of easements

Draft decision

- 5.23 Our draft 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

- 5.24 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).
- 5.25 Where a regulated provider acquires land to create a new easement, with the intention of on selling the land, only the costs of the easement may be included in the RAB value.
- 5.26 The value of existing easements will be the value for those easements as of 1 December 2011.
- 5.27 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).
- 5.28 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.

⁷⁷⁷ We will periodically determine this rate consistent with the cost of capital IM.

⁷⁷⁸ Borrowing costs will be defined term in the determination.

- 5.29 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 should reflect the reasonable costs to establish the easement rights and therefore is an appropriate measure to use as a limitation on costs. For this purpose, the market value includes:
- 5.29.1 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
 - 5.29.2 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).
- 5.30 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.
- 5.31 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

Draft decision

- 5.32 Our draft decision is to:
- 5.32.1 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.⁷⁷⁹
- 5.33 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

- 5.34 To reach a draft decision, we considered which approach:
- 5.34.1 is likely to promote the Part 6 purpose in s 162 of the Act most effectively;
 - 5.34.2 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);
 - 5.34.3 is likely to be most cost effective (without detrimentally affecting the promotion of the s 162 purpose).

Problem definition

- 5.35 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.
- 5.36 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 (i.e., in the same manner as before the implementation of IFRS16).
- 5.37 This decision is associated with the risks listed below.
- 5.37.1 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.
 - 5.37.2 Differences in the treatment of operating leases between the IMs and the new accounting standard may introduce unnecessary compliance costs or complexity.

⁷⁷⁹ 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.

- 5.38 We did not identify any implications for competition in telecommunications markets that might arise from this draft 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

- 5.39 Below we explain our draft decision to align our regulatory rules with GAAP for PQ and ID regulation.

- 5.40 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.

5.40.1 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.

5.40.2 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.⁷⁸⁰ 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.⁷⁸¹

- 5.41 We note that our draft decision to align our regulatory rules with GAAP for operating leases also applies to finance leases.⁷⁸² 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.

⁷⁸⁰ We currently are not aware of any operating lease costs that are pass through or recoverable costs.

⁷⁸¹ These costs are proposed to be excluded from the definition of opex that applies from implementation date and are required to be disclosed separately.

⁷⁸² 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.

- 5.42 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

- 5.43 Our draft decision with respect to the treatment of operating leases was informed by a materiality analysis.⁷⁸³ In our view, two matters that are potentially relevant to fibre services providers:

- 5.43.1 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.
- 5.43.2 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.

⁷⁸³ 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

- 5.44 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.
- 5.44.1 We modelled that the adoption of NZ IFRS 16 provides an NPV benefit of approximately \$2m for Chorus overall.
- 5.44.2 Chorus' total operating revenue was \$990m in 2018. This means that the estimated benefit to Chorus represents approximately 0.2% of revenue.
- 5.45 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.
- 5.46 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

- 5.47 As discussed in the discussion of the calculation of the financial loss asset, we will rely on regulated fibre providers' actual historical costs consistent with GAAP (supplemented by regulatory rules where required) relating to the UFB initiative.
- 5.48 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:
- 5.48.1 from 1 December 2011 up to the date of first application for NZ IFRS 16 are treated as opex.
- 5.48.2 from the date of first application up to the implementation date (ie, up to 31 December 2021) are capitalised.
- 5.49 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

Draft decision

- 5.50 Our draft decision is that regulated providers should include network spares in the roll forward as additions to the RAB value where they are:
- 5.50.1 treated as the cost of an asset under GAAP (wholly or in part); and
 - 5.50.2 held in appropriate quantities, considering the historical reliability of the equipment and the number of items installed on the network

Rationale

- 5.51 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.
- 5.52 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 held in appropriate quantities, considering the historical reliability of the equipment and the number of items installed on the network.
- 5.53 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 draft decision therefore gives effect to the purpose at s 162 by seeking 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.
- 5.54 We consider that, similar to the Part 4 approach for EDBs, regulated providers should have regard to historical reliability of the equipment and the number of items installed on the network when determining their quantities of network spares.

Attachment E: Asset valuation - Timing of cashflows when calculating the financial loss asset

- 5.55 Our draft decision to apply timing factors in calculating the loss asset value is explained in **Chapter 3**. The timing factors are as follows.
- 5.55.1 Revenue. Forecast even monthly revenues to be recognised as being received on the 20th day of each following month.
 - 5.55.2 Operating expenditure. To be recognised as occurring evenly during the year.
 - 5.55.3 Commissioned assets. To be recognised at commissioning date.
 - 5.55.4 Disposed assets. To be recognised at disposal date.
 - 5.55.5 Tax. To be recognised as occurring evenly during the year.
 - 5.55.6 Other regulatory income. To be recognised as being received evenly during the year.
- 5.56 The table below sets out cash flow timing that apply when calculating the financial loss asset. These are the same factors as apply under Part 4.⁷⁸⁴

Table 5.1 Cashflow timing factors when calculating the financial loss asset

Item	Cash flow timing
Revenue	<p>Monthly revenues to be recognised as being received on the 20th day of each following month.</p> <p>We have assumed that suppliers generally expect to receive revenue from regulated fibre providers on the 20th day of the month following supply. Assuming that revenues are received evenly throughout the year on this basis is equivalent to assuming that aggregate revenues are received slightly later than mid-year on average.</p>
Operating expenditure	<p>To be recognised as occurring evenly during the year.</p> <p>Operating expenditure is generally incurred on standard commercial terms, ie, the 20th day of the following month; and other expenses are often paid somewhat earlier, such as salaries and wages. Assuming that operating expenditure is paid on this</p>

⁷⁸⁴ Electricity and Gas Input Methodologies Determination Amendments (No.2) 2012, Reasons Paper (15 November 2012) https://comcom.govt.nz/_data/assets/pdf_file/0019/62074/Final-reasons-for-amendments-to-input-methodologies-CPP-cash-flow-timing.pdf

Item	Cash flow timing
	<p>basis evenly throughout the year, then treating the aggregate operating expenditure as being paid mid-year is a reasonable approximation of the timing of operating expenditure.</p>
Commissioned assets	<p>To be recognised at commissioning date.</p> <p>The IMs provide for commissioned assets to be recognised according to their commissioning dates. In conjunction with the works under construction allowance provided for in the IMs, in our view this reasonably reflects the actual timing of capital project payments. To the extent this does not take into account cash payments that occur after the commissioning date, it would be to the benefit of regulated providers.</p>
Disposed assets	<p>To be recognised at disposal date.</p> <p>Consistent with the IM treatment of disposed assets, the value of disposed assets is not modelled as a cash flow.</p>
Tax	<p>To be recognised as occurring evenly during the year.</p> <p>Corporate tax has to be paid on the provisional and terminal tax dates, which average out to later than mid-year. A mid-year timing assumption for the forecast tax amount is likely to be close to actual cash flow timing.</p>
Other Regulatory income	<p>To be recognised as being received evenly during the year.</p> <p>An assumption that regulated providers receive other regulatory income evenly during the year is consistent with a cash flow timing assumption that other regulatory income is received, in aggregate, at mid-year. As other regulatory income could generally expect to represent a relatively small proportion of overall income, we consider that there should not be any material difference between these different timing assumptions. However, a mid-year assumption is consistent with general revenue and operating expenditure, and in the interests of consistency these should be aligned.</p>

5.57 The depreciation and revaluations are non-cash items in the context of the relevant building blocks formulae. An end-year timing is appropriate, and no specific timing factor is required.

Attachment F: Regulatory WACC for calculating the financial loss asset

- 5.58 As indicated in the section 'Establishing the initial RAB', our draft decisions are to follow the draft cost of capital input methodologies regarding the regulatory WACC, namely that the regulatory WACC for each year of the pre-implementation period is calculated as set out by the cost of capital IM.
- 5.59 This attachment discusses our proposed decisions for the regulatory WACC component of the financial loss asset. The regulatory WACC is used to calculate:
- 5.59.1 the return on assets for each year of the pre-implementation period; and
 - 5.59.2 the present value of the annual losses.
- 5.60 **Chapter 3** explains that our draft decision is to make a separate calculation of the benefit from the Crown financing over the loss period, which is included as an additional building block, to ensure that actual financing costs incurred by a regulated provider in respect of Crown financing are taken care of. Where the Crown financing is equivalent to debt, the benefit is calculated having regard to a stream of notionally avoided interest payments. Where the Crown financing is equivalent to equity, the benefit is calculated by reference to the cost of equity.

Draft decision on the cost of capital parameters of the financial loss asset

- 5.61 Our draft decision is to determine the regulatory WACC for each year of the pre-implementation period based on:
- 5.61.1 a risk-free rate that varies each year, with the term of the risk-free rate based on the number of years remaining until the implementation date;
 - 5.61.2 the debt risk premium prevailing at the beginning of the year in which the median loss is incurred, with the term equal to the remaining years until the implementation date;
 - 5.61.3 a TAMRP that is 7.0% for the period until the IMs are determined in 2020 and 7.5% for the remainder of the pre-implementation period;
 - 5.61.4 other parameters of the regulatory WACC are fixed across the pre-implementation period and do not differ between the pre-implementation periods and post-implementation periods.
- 5.62 Our draft decision is to take into account the actual credit rating of the regulated provider, rather than the benchmark BBB+ credit rating, when we calculate the avoided interest payments used to determine the benefit of Crown financing.

Decision-making framework for the regulatory WACC component of our determination of the financial losses

The promotion of the purpose of IMs: section 174

- 5.63 The asset valuation IM is intended to promote certainty for regulated providers, access seekers, and end-users in relation to the way that assets are to be treated for ID purposes and for PQ (consistent with s 174).

The promotion of the purpose of Part 6: section 162 and section 166(2)(a)

- 5.64 The asset valuation IM must also 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.
- 5.65 Although our methodology for the regulatory WACC component of the financial loss asset is included within the draft asset valuation IM, in proposing our draft decision, we are faced with the same regulatory challenges we face in determining the cost of capital post-implementation date, as specified in **Chapter 3**. That is, we must determine the cost of capital for the supply of regulated FFLAS consistent with the cost of capital that would be faced by regulated providers⁷⁸⁵ in workably competitive markets, i.e. 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).
- 5.66 Because the actual cost of capital of regulated providers in workably competitive markets is not observable, we must make an estimate. Our draft methodology for the regulatory WACC component of the financial loss asset, seeks to determine an estimate of a cost of capital that is reasonable and commercially realistic given investors' exposure to risk at the time. This ensures expectations are for a real rate of return consistent with s 162 and with the principle of FCM that we are proposing to adopt for the IMs relating to the supply of regulated FFLAS.⁷⁸⁶
- 5.67 We consider that the most relevant outcomes of the s 162 purpose for the regulatory WACC component of the financial loss asset are:
- 5.67.1 section 162(a) – that the WACC needs to reflect the incentives that regulated providers had to innovate and to invest, including in replacement, upgraded, and new assets; and
- 5.67.2 section 162(d) – that regulated providers are limited in their ability to extract excessive profits.

⁷⁸⁵ 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.

⁷⁸⁶ See **Chapter 2** for more details.

- 5.68 The other outcomes specified in the s 162 purpose are:
- 5.68.1 section 162(b) – that regulated providers have incentives to improve efficiency and supply FFLAS of a quality that reflects end-user demands; and
 - 5.68.2 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.
- 5.69 We consider that our regulatory WACC component of the financial loss asset draft decisions do not directly promote the outcomes in s 162(b) and s 162(c). However, we consider that our draft decisions are still consistent with the outcomes promoted in s 162(b) and s 162(c). As these outcomes are not directly promoted through these draft decisions, we have not specifically discussed them as part of our reasoning for why these draft decisions best give, or are likely to best give, effect to the purpose of Part 6 in s 162.
- 5.70 The methodology for determining the regulatory WACC component of the financial loss asset 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.
- 5.71 If a regulated provider’s returns are at least those that would be earned in investments of comparable risk, an investor will have had 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.
- 5.72 In reaching our draft decisions on the regulatory WACC component of the financial loss asset, we aim to strike an appropriate balance between s 162(a) and s 162(d).⁷⁸⁷ Due to the estimation difficulties described at paragraph 3.595, determining a cost of capital IM that estimates a cost of capital 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.

⁷⁸⁷ 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.

- 5.73 In reaching our draft decisions on the regulatory WACC component of the financial loss asset, we consider that we have struck an appropriate balance between s 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. We consider that all our draft decisions in this attachment, together, would produce an estimate of a cost of capital that is reasonable and commercially realistic given investors' exposure to risk at the time.
- 5.74 We have proposed each individual draft decision in this attachment because we consider that each draft decision contributes towards our aim of determining an estimate of a cost of capital that is reasonable and commercially realistic given investors' risk and therefore, a cost of capital that best gives, or is likely to best give, effect to the purpose of Part 6 in s 162.
- 5.75 All our individual draft decisions have been made because we consider 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 purpose of Part 6 in s 162. We have not considered it necessary to specifically explain why each individual draft decision best gives, or is likely to best give, effect to the purpose of Part 6 in s 162. Rather, each draft decision proposed, and our rationale for each draft 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 purpose of Part 6 in s 162.

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

- 5.76 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.
- 5.77 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 draft decisions on the regulatory WACC component of the financial loss asset. 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 would have implications for the draft decisions proposed in this attachment.

Our draft decisions

5.78 Each of the WACC parameters is considered in turn.

Risk-free rate

5.79 The draft decision is to use:

5.79.1 a risk-free rate that varies each year, with the term of the risk-free rate based on the number of years remaining until the implementation date.

5.80 Our emerging view was that the risk-free rate would be calculated using a rolling average based on a five-year term. Our reason for calculating the risk-free rate as a rolling average was:

“this limits the potential impact of anomalous market conditions during the pre-implementation period. The details of the regulatory rules that determine the regulatory allowance would not have been known at that stage and therefore FFLAS providers would have been unable to use interest rate swaps to mitigate the risk of anomalous market conditions.”⁷⁸⁸

5.81 We received advice from Dr Lally⁷⁸⁹, prior to forming our emerging view, who advised that the WACC should include a risk-free rate that is applied each year to capital expenditure incurred in that year and has a term set at the number of years until the implementation date.

5.82 In submissions on the emerging views paper, Chorus⁷⁹⁰ and HoustonKemp⁷⁹¹ (consultant for Chorus) submitted that we were being inconsistent with past practice by not proposing to align the risk-free rate with the term of the pre-implementation period. L1 Capital Pty Ltd (**L1 Capital**)⁷⁹² submitted that we should link the risk-free rate to the term of debt required to maintain an investment grade rating, rather than use a rolling average which implies one-year rolling financing. Telstra Super⁷⁹³ also submitted that our emerging views method is inappropriate because it applies lower interest rates with the benefit of hindsight.

5.83 Spark cross-submission⁷⁹⁴ supported Dr Lally’s proposal.

⁷⁸⁸ Commerce Commission, Fibre regulation emerging views paper, paragraph 532.

⁷⁸⁹ Dr Martin Lally, Capital Financial Consultants Ltd, The cost of capital for fibre network losses, 21 May 2019.

⁷⁹⁰ Chorus, Fibre emerging views submission, page 35.

⁷⁹¹ Houston Kemp "Risk free rate, debt premium and TAMRP - A report for Chorus" (9 July 2019), page ii.

⁷⁹² L1 Capital "Fibre Emerging Views submission" (16 July 2019), section C.

⁷⁹³ TelstraSuper "Fibre Emerging Views submission" (16 July 2019), section 2.

⁷⁹⁴ Spark "Fibre regulation emerging views: WACC - Cross-submission" (9 August 2019), page 7.

- 5.84 HoustonKemp acknowledged that aligning the risk-free rate with the term of the pre-implementation period may result in a high value of losses due to the downward trend in the risk-free rate over the pre-implementation period (it has declined from around 4.5% in 2011 to just over 1.0% currently). Instead, HoustonKemp suggested that we calculate losses using Chorus' actual cost of debt. Spark disagreed with HoustonKemp's suggestion because they did not think it was practical to work out the actual cost of debt.
- 5.85 Our draft decision is to set the risk-free rate in expected value terms for the post-implementation period, which means that the risk-free rate used to calculate maximum revenues⁷⁹⁵ is the rate expected at the start of a regulatory period. Under this proposed approach, there is no ex-post adjustment for a variation between the actual and expected rate.
- 5.86 An issue for the determination of financial losses is whether the risk-free rate over the pre-implementation period should be set at the expected value when the contracts were signed or at the rate when investment is incurred (and possibly averaged over time).
- 5.87 We have concluded that the WACC during the pre-implementation period should not be set in expected value terms at the time the contracts were signed in 2011. That is, it is not appropriate to calculate the return on assets over the pre-implementation period using the WACC as at 1 December 2011.
- 5.88 The determination of the initial value of the loss asset requires the calculation of separate WACC values for each year of the pre-implementation period when investment is incurred.
- 5.89 It is our understanding that:
- 5.89.1 The tenders were won with the knowledge that specific price caps would apply to contracted services over the pre-implementation period. It is also our understanding that the price caps were not set with reference to the expected costs of the regulated providers, but rather with reference to existing prices.
- 5.89.2 Legislation enacted after the tenders were won specifies that regulated providers are treated as owning a fibre asset with an initial value equal to the financial losses incurred by a regulated provider in providing FFLAS during the pre-implementation period.⁷⁹⁶

⁷⁹⁵ 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.

⁷⁹⁶ Section 177(2).

- 5.90 We consider that there is no need to compensate investors for the difference between expected costs and actual costs because investors are not subject to the risk associated with an expected cost regulatory regime. That is, they are not subject to the risk that the cost of capital when investment is undertaken could diverge from the cost of capital that was expected at the time the contracts were signed.
- 5.91 We note that this proposal is consistent with further advice received from Dr Lally.⁷⁹⁷
- 5.92 We note that this proposal is also consistent with the regulatory regime that applies to NBN Co in Australia. The Australian Competition and Consumer Commission (**ACCC**) approved an access undertaking⁷⁹⁸ in 2013 that had a losses period and a post-losses period. During the losses period, prices are capped at the lesser of:
- 5.92.1 a price cap which is set at the CPI less 1.5%; or
 - 5.92.2 prices that are consistent with a revenue cap, which is calculated by the ACCC after each year by capitalising any losses incurred in the previous year, with the applicable WACC being the ten-year risk-free rate at the time plus a set margin of 350 basis points.
- 5.93 Oxera⁷⁹⁹ submitted that we should have regard to the approach set by Ofcom to support investment in fibre. However, our recommended approach differs from the approach set by Ofcom⁸⁰⁰ because in that regime:
- 5.93.1 there was no financial losses period;
 - 5.93.2 there were also no price caps (whereas there were in New Zealand), with the fibre service provider Openreach able to set its own prices and take the risk of not recovering its investment if demand did not eventuate; and

⁷⁹⁷ Dr Martin Lally, Capital Financial Consultants Ltd, Review of submissions on the cost of capital for fibre network losses, 12 November 2019.

⁷⁹⁸ ACCC, NBN Co Special Access Undertaking, Final Decision, 13 December 2013. Available at <https://www.accc.gov.au/system/files/ACCC%20Final%20Decision%20on%20the%20Special%20Access%20Undertaking%20lodged%20by%20NBN%20Co%20on%2019%20November%202013.pdf>

⁷⁹⁹ Oxera for Chorus, Fibre emerging views submission, Compensation for asymmetric type 2 risks, 15 July 2019, updated 31 July 2019.

⁸⁰⁰ Ofcom, Regulatory certainty to support investment in full-fibre broadband, Ofcom's approach to future regulation, 24 July 2018. Available at https://www.ofcom.org.uk/data/assets/pdf_file/0025/116539/investment-full-fibre-broadband.pdf

- 5.93.3 price controls were introduced only after Ofcom decided that Openreach had recovered a fair bet on its investment, with this decision based on an assessment of whether actual returns were greater than expected returns.
- 5.94 Turning now to the actual values of the risk-free rate, we consider in turn the cost of debt and the cost of equity.
- 5.95 It is likely that each regulated provider formed a debt portfolio with staggered terms to maturity to minimise refinancing risk (the risk that large amounts of debt need to be refinanced at a single point in time). It is also possible that they hedged the risk-free rate component of this staggered debt portfolio to the end of their contract period so that they could minimise their refinancing risk for the first regulatory period.
- 5.96 We assume that the regulated providers did hedge the risk-free rate component to the end of the contract period, and therefore, we assume that the risk-free rate is updated each year with the term set at the number of years until the implementation date.
- 5.97 The alternative is to assume that the applicable risk-free rate for each year has a set term, such as five years (or ten years as assumed by the ACCC for their calculation of the losses asset value).
- 5.98 We consider our proposed approach is consistent with our assumption that regulated providers use interest rate swaps to minimise the refinancing risk associated with periodic PQ path resets.
- 5.99 For the cost of equity, the standard finance assumption when calculating the cost of equity is that investors have an investment horizon that aligns with the life of the assets. A ten-year term is typically used as the proxy for the risk-free rate for investments with lives that are greater than ten years. However, for investments that have periodic resets, such as regulated assets, it is reasonable to assume that investors reset their expectations at the start of each regulatory period. It is reasonable to assume that for regulated FFLAS, investors will reset their investments at the start of the first regulatory period.
- 5.100 Our draft decision is therefore to apply the same method to the calculation of the risk-free rate for the cost of equity and the cost of debt.

Asset beta

- 5.101 Our draft decision is to use the same asset beta for the pre-implementation period and post-implementation periods.
- 5.102 Our emerging view was to use the same asset beta for the pre-implementation period and post-implementation period. We acknowledged that the asset beta could differ between the periods; however, we noted the difficulties associated with estimating a separate asset beta for the pre-implementation period.⁸⁰¹
- 5.103 Oxera⁸⁰² submitted that the asset beta should be higher in the pre-implementation period because operating leverage (ratio of capital to operating expenditure), construction risk and demand risk were higher. Oxera noted that Ofcom has lowered its asset beta over time for the fibre businesses it regulates. L1 Capital⁸⁰³ submitted that operating and demand risk are significantly different during the pre-implementation period. Spark⁸⁰⁴ submitted that Chorus' copper network provided it with a hedge during the pre-implementation period and that the financing agreement with the Crown mitigated some of its risks.
- 5.104 When considering whether the asset beta should differ between the pre-implementation period and post-implementation period, it is important to account only for systematic risks and to realise that we are concerned with the asset beta of a sector-wide efficient provider of wholesale regulated FFLAS, not the asset beta of a specific company.
- 5.105 The risks noted in submissions that are not generally systematic risks include competition and asset stranding associated with technological change. These risks can be managed by investors through portfolio diversification. We note that we have proposed to apply ex-ante compensation for future stranding in the IMs in return for the prospect of asset redundancy at some future date. However, we do not consider it appropriate to compensate for stranding risk ex-post when there has not been an explicit arrangement put in place ex-ante for this to happen. We are not aware of any ex-ante compensation for stranding risk was incorporated into the price caps of the regulated providers during the pre-implementation period.

⁸⁰¹ Commerce Commission, Fibre regulation emerging views technical paper, 21 May 2019, paragraph 520.

⁸⁰² Oxera for Chorus, Fibre emerging views submission, Compensation for systematic risk report, 15 July 2019 updated 31 July 2019, page 18.

⁸⁰³ L1 Capital, Fibre emerging views submission, 16 July 2019, concluding remarks.

⁸⁰⁴ Spark, Fibre regulation emerging views: WACC, 9 August 2019, page 5.

- 5.106 The risks that may be systematic include aggregate demand, operating leverage, the specification of price and potential for growth opportunities. It is possible that the aggregate demand risk and potential for growth opportunities were higher during the pre-implementation period compared to the post-implementation period. Operating leverage may also have been higher during the pre-implementation period when capital costs made up a proportionally greater share of costs, which could point to a higher asset beta for the pre-implementation period. The specification of price differs between the two periods; with a loss-correction regime introduced part way through the pre-implementation period and a revenue cap for the post-implementation period, where we must specify the maximum revenues that may be recovered by a regulated provider.⁸⁰⁵
- 5.107 Overall, any adjustment to the asset beta to account for differing systematic risk in the pre-implementation period and post-implementation periods would be arbitrary and difficult to quantify. There is therefore not a strong case for making an ad-hoc adjustment. It is reasonable to assume that the case for a higher asset beta due to aggregate demand risk, lower operating leverage and construction risk is offset by the case for a lower asset beta due to the compensation for losses.

Tax adjusted market risk premium

- 5.108 Our draft decision is to use a 7.0% TAMRP for the period until the IMs are determined in 2020 and a 7.5% TAMRP for the remainder of the pre-implementation period.⁸⁰⁶
- 5.109 Our emerging view was the TAMRP would be determined for the purpose of regulated FFLAS and it was implied that the same TAMRP would be used for the pre-implementation and post-implementation periods. This was not contentious and did not receive adverse submissions.
- 5.110 We have updated our estimate of the TAMRP to 7.5%. However, we consider it appropriate to apply the TAMRP of 7.0% to the pre-2020 period because this was our estimate of the TAMRP during this time. The higher TAMRP of 7.5% will apply from the time the IMs are determined in 2020.

Debt risk premium

- 5.111 Our draft decision is to use a simplification of the calculation of the debt risk premium for the pre-implementation period, based on the debt risk premium prevailing at the beginning of the year in which the median loss is incurred, with the term equal to the remaining years until the implementation date.

⁸⁰⁵ 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.

⁸⁰⁶ As the commencement date of the IM determination is likely to occur part way through a regulated provider's financial year, our draft decision is to split the return on assets for that year into two parts, with the applicable TAMRP used to calculate the return on assets for each part of the year. In doing so, we will assume that capital expenditure is spent evenly throughout the year.

- 5.112 Our emerging view was that the method for calculating the debt risk premium should be as consistent as possible between the pre-implementation period and post-implementation period. The regulated providers are not able to hedge the debt risk premium and instead manage refinancing risk by forming a staggered portfolio of debt instruments. The emerging view was to use a historical average approach with a five-year term for the debt risk premium and a TCSD if there is evidence the average tenor of debt for a company is greater than five years.
- 5.113 The emerging view was uncontentious. HoustonKemp⁸⁰⁷ raised a technical matter, which suggested that it is inappropriate to assume Chorus could have formed a portfolio of debt immediately and therefore, that it would be inappropriate to calculate the WACC using debt risk premiums for the five years up to 2011. Instead, HoustonKemp suggested that we should calculate the debt risk premium for each year of the pre-implementation period by gradually forming a five-year trailing average of debt risk premiums over the first five years and then rolling this five-year trailing average forward each of the remaining years of the implementation period.
- 5.114 Following consideration of HoustonKemp's proposal, Dr Lally has revised his previous advice. He now considers that the task is to form a five-year portfolio of debt for each year of investment by assuming the portfolio is gradually implemented over the five years following each investment.⁸⁰⁸ We concur with Dr Lally's advice.
- 5.115 Historical debt risk premiums can be calculated using data available from Bloomberg. However, as noted above, the ACCC simplified this calculation by applying a set premium above the risk-free rate for the losses period. We have considered whether there is a simplified approach for estimating the debt risk premium.
- 5.116 Dr Lally has advised that a simplification would be to estimate the year corresponding to the median loss over the pre-implementation period (assuming the losses reduce over time) and use the debt risk premium prevailing at the beginning of that year, with the term equal to the remaining years until the implementation date.⁸⁰⁹ Dr Lally has considered illustrative data of annual losses, as well as debt risk premiums for each year of the pre-implementation period, and has concluded that the simplified approach may be a reasonable approximation of the debt risk premium for the pre-implementation period.

⁸⁰⁷ Houston Kemp "Risk free rate, debt premium and TAMRP - A report for Chorus" (9 July 2019)

⁸⁰⁸ Dr Martin Lally, Capital Financial Consultants Ltd, Review of submissions on the cost of capital for fibre network losses, 12 November 2019, page 7.

⁸⁰⁹ Dr Martin Lally, Capital Financial Consultants Ltd, Review of submissions on the cost of capital for fibre network losses, 12 November 2019, page 8.

5.117 Our draft decision is to use the simplified method rather than the complex alternative of calculating debt risk premiums for each year of the pre-implementation period in a manner that is consistent with a staggered debt portfolio.

Credit rating

5.118 Our draft decision is to maintain the same credit rating between the pre-implementation period and post-implementation period.

5.119 Our emerging view implied that the same credit rating would be used for the pre- and post-implementation periods. The credit rating assumption of BBB+ reflects the view that it is in the long-term interests of fibre users to have LFCs with a credit rating at a margin above investment grade.

5.120 L1 Capital submitted that the build period included “construction risk, uncertain demand for fibre services, significant financial penalties and an uncertain regulatory regime”⁸¹⁰, all reflected in a credit rating of BBB during the pre-implementation period, which is lower than our emerging view of using a BBB+ rating.

5.121 It is possible that credit rating companies would be more concerned about the default risk of a company rolling out a regulated FFLAS network than for an established regulated provider. However, the regulated providers have long-term contracts and are treated as owning a fibre asset with an initial value that is adjusted to incorporate the financial losses incurred by a regulated provider in providing FFLAS during the pre-implementation period.⁸¹¹ While Chorus’ credit rating was downgraded during the pre-implementation period, we understand that this was related to its copper business rather than its business supplying regulated FFLAS. For the purpose of setting the regulated WACC for the draft decision, we have maintained the same credit rating between the pre- and post-implementation periods.

Leverage

5.122 Our draft decision is to maintain the same leverage between the pre-implementation period and post-implementation period.

5.123 Our emerging view was that we would not use actual leverage assumptions when determining a WACC estimate in the pre-implementation period; instead we would use the same notional leverage used to determine the WACC estimate in the post-implementation period.

5.124 Oxera and L1 Capital submitted that leverage should be higher during the build period for the same reasons they considered the asset beta should be higher (see paragraph 5.103).

⁸¹⁰ L1 Capital, Fibre emerging views submission, 16 July 2019, section C.

⁸¹¹ Section 177(2).

- 5.125 As with asset beta, we consider it reasonable to assume that the case for a higher gearing during the pre-implementation period is offset by the case for a lower gearing due to the compensation for losses.
- 5.126 Further, we note that our estimate of leverage has been calculated using data from 2009 to 2019, which is a similar timeframe to the pre-implementation period, and is therefore a reasonable estimate of leverage for that time.
- 5.127 We discuss in the cost of capital section why using a leverage consistent with the leverage of comparator set for estimating beta is important in addressing the leverage anomaly.

WACC uplift

- 5.128 Our draft decision is to not have a WACC uplift in the pre-implementation period, which is consistent with our draft decisions for the post-implementation period.
- 5.129 We consider that there is no case for a WACC uplift in the pre-implementation period because the investment was already agreed with the government as part of the tender process and the financial losses incurred by a regulated provider during the pre-implementation period are treated as a fibre asset.⁸¹²

Consistency between regulated providers subject to PQ regulation and regulated providers subject only to ID regulation

- 5.130 Our draft decision is that the WACC parameters will be applied consistently between regulated providers subject to PQ and regulated providers subject only to ID regulation during the pre-implementation period.
- 5.131 Our emerging view was there should be no difference between the WACC that applies to Chorus and the other LFCs in the pre-implementation period.
- 5.132 WIK Consult⁸¹³ and Castalia⁸¹⁴ for Enable and UltraFast submitted that the regulated providers subject only to ID regulation warrant a higher asset beta than Chorus. **Chapter 3** on the asset beta responds to these submissions and concludes that the submissions were not able to identify a robust basis on which to estimate any additional systematic risk that might apply to the regulated providers subject only to ID regulation.
- 5.133 There were no additional points raised in submissions that give us reason to apply different WACC parameters to regulated providers subject to PQ and regulated providers subject only to ID regulation.

⁸¹² Section 177(2).

⁸¹³ WIK-Consult, Report for Enable Networks and Ultrafast Fibre, In response to the Commerce Commission's fibre regulation emerging views: technical paper, 21 May 2019, page 2.

⁸¹⁴ Castalia Strategic Advisors, Report to Ultrafast Fibre Limited and Enable Networks Limited, Rate of return for information disclosure profitability monitoring for local fibre companies, August 2019, page 1.

Attachment G: Nelson-Siegel-Svensson approach to modelling yield curves

Purpose of this attachment

- 5.134 One of our draft decisions for the methodology for calculating the debt premium is that we will also have regard to the NSS curve.
- 5.135 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 4,⁸¹⁵ and that this data will be specific to regulated FFLAS when determining the regulatory WACC for regulated FFLAS.

Summary

- 5.136 The Nelson-Siegel term structure approach is used extensively internationally by central banks and other market participants for modelling the interest rate term structure.
- 5.137 The framework allows for a yield curve with the 'humped' shape often associated with bond-yield term structures.⁸¹⁶ 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.
- 5.138 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

- 5.139 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.
- 5.140 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.

⁸¹⁵ 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.

⁸¹⁶ When 'yield curve' is used in this attachment, we are referring to a debt premium curve.

5.141 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.

5.142 The NSS model is defined as **(formula 1)**:

$$5.143 \quad DRP-t = \beta_1 + \beta_2 \left[\frac{1 - e^{(-\frac{t}{\lambda_1})}}{t/\lambda_1} \right] + \beta_3 \left[\frac{1 - e^{(-\frac{t}{\lambda_1})}}{t/\lambda_1} - e^{(-\frac{t}{\lambda_1})} \right] + \beta_4 \left[\frac{1 - e^{(-\frac{t}{\lambda_2})}}{t/\lambda_2} - e^{(-\frac{t}{\lambda_2})} \right]$$

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.
- 5.144 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.
- 5.145 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.⁸¹⁷

⁸¹⁷ For example, see PwC "Electranet: Estimating the benchmark debt risk premium" (May 2012), page 13.

- 5.146 According to the European Central Bank,⁸¹⁸ there are four main reasons for the popularity of the Nelson-Siegel model:
- 5.146.1 the model is easy to estimate;
 - 5.146.2 the yield curve can provide estimates for all maturities (ie, bonds not observable in the market);
 - 5.146.3 factors have intuitive interpretation so that estimations and conclusions are easily communicated from the model; and
 - 5.146.4 the model has been proven to fit data well.
- 5.147 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

- 5.148 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.⁸¹⁹
- 5.149 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.
- 5.150 Our draft decision is to include majority government owned bonds in the sample to expand the number of observations.⁸²⁰
- 5.151 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.
- 5.152 We attempt to mitigate the non-representative effects of these additional bonds with the use of dummy variables in the NSS estimation function.⁸²¹

⁸¹⁸ European Central Bank (2008):

<https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp874.pdf?4b32dc2539d2598c420ec5e96a3891f7>

⁸¹⁹ 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.

⁸²⁰ 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.

⁸²¹ This is also consistent with the functional form used in the NSS curve estimation in the Part 4 debt premium estimations.

5.153 In a 2013 Competition Economists Group (CEG) report,⁸²² 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.

5.154 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.

5.155 This gives us the new function including an additional two beta parameters (formula 2):

$$DRP(t) = \beta_1 + \beta_2 \left[\frac{1 - e^{(-\frac{t}{\lambda_1})}}{t/\lambda_1} \right] + \beta_3 \left[\frac{1 - e^{(-\frac{t}{\lambda_1})}}{t/\lambda_1} - e^{(-\frac{t}{\lambda_1})} \right] + \beta_4 \left[\frac{1 - e^{(-\frac{t}{\lambda_2})}}{t/\lambda_2} - e^{(-\frac{t}{\lambda_2})} \right] + \beta_5 \text{ BBB} + \beta_6 \text{ A-}$$

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

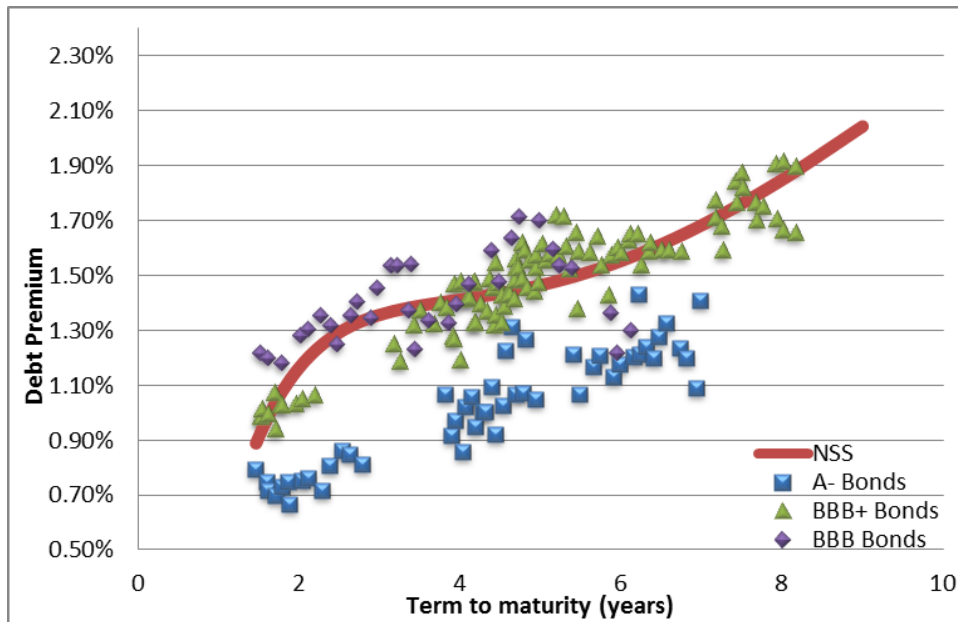
5.156 This section demonstrates how the application of the NSS may apply to the fibre regime in the estimation of the debt premium. The examples used are from Part 4 when we introduced the NSS curve in the IM review.

5.157 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.

5.158 **Figure 5.1** 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).

⁸²² Competition Economists Group "Estimating the debt risk premium" (June 2013).

Figure 5.1: Adjusted NSS Curve (Jan 2015 – Jan 2016)



5.159 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.

5.160 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.⁸²³

5.161 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.

⁸²³ This is consistent with how we apply the NSS curve in Part 4 debt premium estimations.

Nelson-Siegel-Svensson assumptions

5.162 When generating the yield curves to estimate the debt premium, we have implicitly assumed that:

- 5.162.1 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 model⁸²⁴
- 5.162.2 outer-rated bonds in the sample (BBB and A-) have the same general yield curve shape as the BBB+ rated bonds; and
- 5.162.3 there is no significant difference between majority government owned corporate bond yields and private corporate bond yields.

⁸²⁴ 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.

Attachment H: Extracts from Martin Lally, The weighted average cost of capital for Electricity Lines Businesses, October 2008.

10.1 Asymmetric Risks

5.163 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.⁸²⁵

5.164 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.

⁸²⁵ 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.

- 5.165 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)⁸²⁶. 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 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.
- 5.166 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 (i.e., 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.

⁸²⁶ 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.

- 5.167 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.
- 5.168 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 I: Estimating compensation for bearing asset stranding risk

Dixit and Pindyck approach

5.169 We can convert the risk of asset stranding into a discount rate using learnings from Dixit and Pindyck. This can be modelled two ways:

5.169.1 **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.

5.169.2 **Exponential decay** – if the probability an asset is stranded follows a Poisson distribution, what discount rate would compensate the investor for that risk.

5.170 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, however as this means to test the reasonableness of positions rather than to set an *ex-ante* allowance to compensate for asset stranding risk.

*Sudden death model*⁸²⁷

5.171 This methodology considers a project which performs well until an event occurs when it stops abruptly. If we let the initial price be P the value of the project is the discounted present value of expected profits over its lifetime.

$$\frac{P[1 - e^{-\delta T}]}{\delta}$$

5.172 This compares to the infinite life project where we let T tend to infinity – in other words the normal valuation of an infinite annuity

$$\frac{P}{\delta}$$

5.173 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.

⁸²⁷ See Dixit and Pindyck (1994) Section 4.B pages 205 onwards

*Exponential decay model*⁸²⁸

5.174 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.

5.174.1 From this we are given the cumulative probability distribution function of T is

$$1 - e^{-\lambda T}$$

5.174.2 The probability density function is

$$\lambda e^{-\lambda T}$$

5.174.3 The expected value of project with initial price P is

$$\frac{P}{(\lambda + \delta)}$$

5.174.4 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

5.175 Both of these formulae 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.

⁸²⁸ See Dixit and Pindyck (1994) Section 4.A pages 200 onwards

Attachment J: Members of our expert advisory panel for fibre

- 5.176 We have chosen to form 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.
- 5.177 The expert advisory panel is not fixed, and members may be added or removed over time. **Table 5.2** provides detail on the two members we have currently appointed to the panel.

Table 5.2: Members of our expert advisory panel for fibre

Expert	Bio
Martin Cave	<p>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.</p> <p>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). He has written a number of books and papers on regulation, often with Robert Baldwin as a co-author – including the optimistically called <i>Understanding Regulation</i> (Oxford University Press, 2012). They are currently working on a book provisionally entitled <i>Taming the Corporation</i>. 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 regulator 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.</p> <p>He has previously provided expert advice to the Commerce Commission for the development of IMs under Part 4.</p>

Ingo Vogelsang	<p>Ingo Vogelsang is a professor of economics at Boston University.</p> <p>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. 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 (BMW), the German Monopoly Commission, the German regulatory agency (BNetzA), and regulatory agencies in a number of countries.</p> <p>He has previously provided expert advice to the Commerce Commission for the development of IMs under Part 4.</p>
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