

New regulatory framework for fibre

Invitation to comment on our proposed approach

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Foreword

This paper starts the process of developing and implementing our new regulatory regime for the fibre networks that are being rolled out under New Zealand's Ultra-Fast Broadband initiative.

The Telecommunications (New Regulatory Framework) Amendment Bill establishes the statutory framework for this new regime. The Bill passed its third reading in Parliament on 7 November 2018 and now awaits Royal Assent.

We are publishing this paper now in order to start our engagement with stakeholders as soon as possible. Our new regime will replace the existing contractual framework of the Ultra-Fast Broadband build programme. Our planning to date assumes that we will request, and receive, the full two-year extension allowed for in the Bill.

The long-term benefit of end-users is at the heart of New Zealand's telecommunications regime. The sector is changing rapidly; end-user demand for data and services is growing, broadband technology is responding—or leading—and the competitive landscape is shifting. As a result, the rules we develop need to be robust and durable to allow industry to best manage these challenges.

Stakeholder engagement will be essential if we are to develop a regulatory regime that delivers the most value for New Zealanders.

You can expect that we will work hard to give you advance notice of our timetables so that you can plan your input effectively. We will phase our work to ease consultation. We propose to provide issues papers and hold workshops to gather views and to help submitters understand how best to inform our decisions.

In turn, we ask that you commit the resources to our consultation process to help us achieve the best outcome in the terms of the new legislation.

I look forward to your support and input.

Ngā mihi nui

Stephen Gale
Telecommunications Commissioner

Executive Summary

- X1 On 7 November 2018 the Telecommunications (New Regulatory Framework) Amendment Bill (**Bill**) passed its third reading in Parliament. Once the Bill is enacted (by the giving of Royal Assent), we will be required to develop and implement a new regulatory regime for fibre fixed line access services (**FFLAS**). We expect this regime will apply to Chorus Limited (**Chorus**) and the other local fibre companies (**LFCs**)— Enable Networks Limited (**Enable**); Northpower Fibre Limited and Northpower LFC2 Limited (**Northpower**); and Ultrafast Fibre Limited (**Ultrafast**).¹
- X2 This paper marks the beginning of our consultation process on developing the new regulatory regime for FFLAS.² It sets out the context for the new regulatory framework, and provides an overview of its features. The paper also discusses and invites comments on:
- X2.1 our proposed process for developing the upfront rules, processes and requirements for regulating FFLAS, known as the **input methodologies**;
 - X2.2 our interpretation of the statutory purpose statements that we are required to give effect to when making our decisions;
 - X2.3 key economic concepts and principles which may be useful in giving effect to the purpose statements; and
 - X2.4 key issues we have initially identified regarding the fibre input methodologies.

This paper focuses on input methodologies for fibre services

- X3 Under the new regulatory regime for FFLAS, there will be three main components of the regulation for which we are responsible:
- X3.1 input methodologies;
 - X3.2 a price-quality path determined for Chorus based on the input methodologies; and
 - X3.3 an information disclosure regime determined for Chorus and the other LFCs based on the input methodologies.

¹ Regulations will specify who the regulated fibre service providers are and the type of regulation each will be subject to.

² Throughout this document, 'new regulatory framework' refers to the framework as set out in the Telecommunications Act 2001, as amended by the Bill. When we refer to our 'regulatory regime', we mean the three main components of the regulation for which we are responsible: input methodologies, price-quality and information disclosure regulation.

- X4 This paper focuses on the development of input methodologies for FFLAS. The input methodologies are intended to promote certainty for suppliers and consumers in relation to the rules, requirements and processes applying to the regulation of FFLAS.
- X5 The input methodologies will underpin the price-quality path and information disclosure determinations we will make in the future.
- X5.1 Under price-quality regulation, we determine the maximum prices and/or revenues a supplier is allowed to earn from its regulated fibre services, and the quality at which those services must be provided.
- X5.2 Under information disclosure regulation, suppliers will be required to disclose information that allows us and stakeholders to assess whether the purpose of Part 6 of the amended Telecommunications Act 2001 (**Act**) is being met.
- X6 We expect to base the input methodologies for FFLAS on a building blocks model, similar to that developed and implemented by us for energy networks and airports under Part 4 of the Commerce Act 1986.

Indicative timings for developing the fibre input methodologies

- X7 We consider it important to share our proposed process for developing the fibre input methodologies, to ensure stakeholders understand and can prepare for our consultation processes.
- X8 We have set out our indicative timings for when we will be seeking stakeholder views as part of our process for developing the fibre input methodologies. We anticipate requesting a two year extension to the implementation period. On the assumption that this request will be granted, we expect to complete this process by issuing a final determination for the fibre input methodologies in the third quarter of 2020.
- X9 We have also included in this paper indicative timings for the price-quality path and information disclosure determinations, which we propose to consult on separately once the input methodologies have been completed. These indicative timings similarly anticipate our requested extension to the implementation period is granted.
- X10 We are keen to understand if stakeholders require further information in order to plan their engagement with us throughout the input methodology setting process.

Preliminary views on our decision-making approach

- X11 We have provided preliminary views on our interpretation of the purpose statements in Part 6 of the Act and our decision-making framework, which focuses on:³
- X11.1 promoting the long-term benefit of end-users in FFLAS markets by promoting outcomes that are consistent with outcomes produced in workably competitive markets; and
 - X11.2 promoting workable access in telecommunications markets for the long-term benefit of end-users to the extent that we consider it relevant.
- X12 We consider there is generally a complementary relationship between these two objectives, given they are both concerned with the outcomes produced by workable competition for the long-term benefit of telecommunication end-users.⁴ We will need to exercise our judgement on a case-by-case basis when we are making our decisions, to best give effect to these provisions.
- X13 We are also seeking views on the economic principles we consider may be relevant when developing the new regime. We consider that the principles adopted in our prior work under Part 4 of the Commerce Act 1986 are an appropriate starting point, and acknowledge there are differences between FFLAS and the other sectors we regulate. These principles from Part 4 are listed below.
- X13.1 Real financial capital maintenance (FCM).
 - X13.2 Allocation of risk.
 - X13.3 Asymmetric consequences of under-investment and over-investment.
- X14 We invite views on the key economic principles we should have regard to when developing the fibre input methodologies.

Initial issues we have identified related to the fibre input methodologies

- X15 We have identified ten issues related to the fibre input methodologies on which we are seeking early views from stakeholders. These include:
- X15.1 issues that are regime-wide, such as the scope of regulated services and matters for which input methodologies should be determined; and

³ All references to legislative provisions are to the Act as amended by the Bill, unless otherwise indicated.

⁴ However, we recognise that s 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.

- X15.2 issues specific to certain input methodologies, such as asset valuation, cost allocation, cost of capital and quality dimensions.
- X16 We have not yet considered all the matters that we expect to encounter when developing the fibre input methodologies. We will continue to develop, and seek your views on these issues and other matters throughout the input methodologies consultation process.

We want to hear your views

- X17 We are interested in your views on the topics discussed in this paper. In particular, we welcome feedback on our proposed process for developing the fibre input methodologies, our proposed decision-making approach, and the questions we have posed on the initial issues we have identified. We also welcome views on other relevant matters that we should consider as we develop the input methodologies.
- X18 Please email your written submissions to TelcoFibre@comcom.govt.nz by **5pm on 21 December 2018**, with 'Submission on fibre input methodologies' in the subject line. All submissions will be published on our website as discussed further in **Chapter 4**. You will then have until **25 January 2019** should you wish to make a cross-submission.
- X19 Following feedback on this paper, we may update our proposed process and decision-making approach. The issues we have identified will be discussed further throughout our consultation process.

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1. Introduction

1.1 This chapter:

- 1.1.1 outlines the purpose of this paper;
- 1.1.2 notes that this paper focuses on how we will create input methodologies, to provide certainty regarding subsequent price-quality regulation and information disclosure requirements;
- 1.1.3 explains why we have published this paper now and the statutory deadline for implementing our new regulatory regime for fibre;
- 1.1.4 sets out how the remainder of this paper is structured; and
- 1.1.5 explains how you can provide your views.

Purpose of this paper

- 1.2 The Telecommunications (New Regulatory Framework) Amendment Bill (Bill) progressed through its third reading on 7 November 2018. Once the Bill is enacted (by the giving of Royal Assent), a new regulatory framework for fibre fixed line access services (**FFLAS**) will be created. The scope of what is, and what is not, a regulated FFLAS is discussed in **Chapter 7**.
- 1.3 Throughout this document, 'new regulatory framework' refers to the framework as set out in the Telecommunications Act 2001 (**Act**), as amended by the Bill. When we refer to our 'regulatory regime', we mean the three main components of the regulation for which we are responsible for developing and implementing: input methodologies, price-quality and information disclosure regulation.
- 1.4 The explanatory note to the Bill indicates that this new framework will apply to Chorus Limited (**Chorus**) and the other local fibre companies (**LFCs**)—Enable Networks Limited (**Enable**); Northpower Fibre Limited and Northpower LFC2 Limited (**Northpower**); and Ultrafast Fibre Limited (**Ultrafast**).⁵ Regulations will specify how, and in what respects, the new regulatory framework applies to each LFC.⁶
- 1.5 This paper is the first step in our engagement with the industry, end-users and other interested stakeholders to ensure the successful implementation of our

⁵ The Act's definition of 'LFC' includes Chorus. However, the term 'LFC' is typically used to refer only to the other three LFCs (i.e. Enable, Northpower and Ultrafast Fibre). In this paper, we adopt the definition in the Act, which includes Chorus. When we refer to the non-Chorus LFCs, we use the term 'other LFCs'.

⁶ Paras 1.11 to 1.14 below discuss assumptions we have made about the content of those regulations, for the purpose of preparing this paper.

new regulatory regime for FFLAS under the new regulatory framework in the Bill. Unless otherwise indicated, all references to legislative provisions in this paper are to the Telecommunications Act 2001 as amended by the Bill. This paper seeks views on:

- 1.5.1 our proposed process for creating the upfront rules, processes and requirements for regulating FFLAS, known as the **input methodologies**;
- 1.5.2 our interpretation of the new regulatory framework, including the statutory purpose statements;
- 1.5.3 key economic concepts and principles which should be applied in giving effect to the purpose statements; and
- 1.5.4 key issues we have initially identified, which will need to be addressed as part of determining the input methodologies.

Our focus is on the development of the fibre input methodologies

- 1.6 Once the Bill is enacted, we will be required to determine input methodologies, and then set a price-quality path for Chorus and information disclosure requirements for Chorus and the other LFCs in respect of FFLAS.
- 1.7 The input methodologies will set out the key regulatory rules, requirements and processes applying to the regulation of FFLAS. By doing this, the input methodologies are intended to promote certainty for fibre services providers, access seekers and end-users.
- 1.8 Given that the input methodologies will underpin our price-quality path and information disclosure requirements, this paper primarily focuses on our proposed process, legal and economic approach, and key issues to be addressed in determining the input methodologies.
- 1.9 Our new regulatory regime for FFLAS is only concerned with regulating one part of the telecommunications sector in New Zealand. The Bill also introduces other amendments to the Act that will require us to undertake work and consult with stakeholders. These other aspects are not covered in this paper and we will be consulting on those matters separately. Figure 1.1 summarises the new requirements being introduced by the Bill, and sets out which elements are discussed in this paper and which will be consulted on separately.⁷

⁷ Figure 1.1 shows the mandatory input methodologies required under s 175 (top left box).

Figure 1.1: Summary of requirements introduced by the Bill

<p>Requirements within the scope of this paper</p> <p>Consult and determine input methodologies for:</p> <ul style="list-style-type: none"> • cost of capital • valuation of assets • allocation of common costs • treatment of taxation • quality dimensions • regulatory rules and processes • capital expenditure projects 	<p>Requirements which are informed by input methodologies</p> <ul style="list-style-type: none"> • Consult and determine information disclosure determinations for Chorus and the other LFCs • Consult and determine price-quality path determination for Chorus, for the first three year regulatory period
<p>Other requirements introduced by the Amendment Bill</p> <ul style="list-style-type: none"> • Undertake reviews of FFLAS regulation, including: <ul style="list-style-type: none"> - Anchor services reviews - Price-quality reviews - Deregulation reviews • Determine 'specified fibre areas' • Make consequential changes to standard terms determinations (STDs) • Implement annual CPI adjustments to charges in STDs • Prepare a copper withdrawal code • Review certain copper services • Monitor telecommunications retail service quality, and make available reports/summaries/information to better inform consumer choice • Review industry dispute resolution schemes • Ability to review/make retail service quality codes 	

- 1.10 **Chapter 3** explains how we will consult separately on the processes for implementing price-quality paths and information disclosure regulations once the fibre input methodologies have been progressed. It also provides a further overview of the other requirements introduced by the Bill.

Why we have published this paper now

- 1.11 We have published this paper before the Bill has received Royal Assent and the associated regulations have been made. We have done so because we consider it important to get started on our work, including by seeking stakeholder views, given the timeframes for implementing our new regime.
- 1.12 The timing of the associated regulations specifying which entities are subject to what form of regulation (price-quality or information disclosure) is still uncertain, although we do not expect the regulations to impact our decisions on developing the fibre input methodologies. As such, we are commencing work to develop the fibre input methodologies before those regulations are made. Our current view that the regulations will not impact the fibre input methodologies is necessarily

provisional and we will only reach a final view once the regulations have been made.

1.13 We have made the following assumptions in preparing this paper:

1.13.1 regulations will subject Chorus to price-quality regulation, and subject Chorus and the other LFCs to information disclosure regulation; and

1.13.2 we will request, and be granted by the Minister in accordance with Part 2 of Schedule 1AA of the amended Act, a two-year extension to the implementation date (i.e. the date by which the determinations for the price-quality path and information disclosure requirements must be in place), from 1 January 2020 to 1 January 2022.

1.14 We will ensure our work is consistent with the final form of the regulatory framework, as given effect through the amended Act and the regulations. We will publish an updated process paper if there are material changes to our assumptions above.

Structure of this paper

1.15 Below we set out the structure of the rest of this paper.

1.15.1 **Chapter 2: Context for the new fibre regulatory framework** provides background information regarding fibre networks in New Zealand. It includes an overview of New Zealand's telecommunications sector today, the roll-out of fibre networks, and our work on fibre regulation to date.

1.15.2 **Chapter 3: Overview of our fibre regulatory regime** explains our new regulatory regime for FFLAS and summarises amendments to the Act following the Minister's review of telecommunications regulation in New Zealand.

1.15.3 **Chapter 4: Developing the fibre input methodologies** explains our proposed process for creating the fibre input methodologies, to help you prepare and provide input. It sets out our expected key dates and deliverables.

1.15.4 **Chapter 5: Interpreting the new regulatory framework** discusses our preliminary understanding of the regulatory framework and how we propose to apply this understanding. This chapter includes what we are required to apply when determining the upfront rules for our regime—these upfront rules will be the fibre input methodologies for FFLAS.

1.15.5 **Chapter 6: Economic concepts and principles relevant to our new regime** outlines our views on the key economic concepts and principles that may be relevant to our decisions. It introduces economic principles that may provide useful guidance in giving effect to the statutory purposes (based on

our experience under Part 4 of the Commerce Act 1986), and invites views on how relevant these are to the fibre input methodologies.

1.15.6 **Chapter 7: Issues for early discussion** describes some initial issues we have identified with the application and content of the fibre input methodologies. This includes discussion of regime-wide issues as well as issues specific to certain fibre input methodologies. It seeks stakeholder views on those matters to inform our input methodology development work.

1.16 We have highlighted the issues raised in **Chapter 7** now because we consider it important to receive early feedback on them. This list of issues is not comprehensive and we will consult on these and other issues in greater detail as we develop the fibre input methodologies.

We want to hear your views

1.17 We want to hear the views of stakeholders, including fibre service providers, retail service providers, end-users and any other interested persons, on the proposed approach outlined in this paper and the issues we have identified.

1.18 We will hold a workshop on **10 December 2018** (within the submission period) to discuss this paper with stakeholders. This will provide an opportunity for stakeholders to clarify their understanding of our proposed approach and the key issues we have identified, and to ask questions. It will also allow us to receive early views and feedback on our paper. If you are interested in attending the workshop, you should e-mail TelcoFibre@comcom.govt.nz.

1.19 We invite submissions on our proposed process for creating the fibre input methodologies, our proposed decision-making approach, the issues we have identified and the questions we have posed. A summary of the consultation questions is provided in **Attachment A**.

1.20 To give us time to consider submissions and meet our statutory timeframes, we ask that submissions are received by **5pm on 21 December 2018**.

1.21 Submissions should be emailed to TelcoFibre@comcom.govt.nz with 'Submission on fibre input methodologies' in the subject line. All submissions will be published on our website (see further details in **Chapter 4**).

1.22 We will consider the input we receive through the workshop and submissions and use this to inform the development of our emerging views and draft decision papers.

2. Context for the new fibre regulatory framework

2.1 This chapter sets the scene for the new regulatory framework by providing an overview of:

2.1.1 New Zealand's telecommunications sector today;

2.1.2 the roll-out of fibre networks in New Zealand;

2.1.3 the current information disclosure requirements for fibre networks in New Zealand, which will be replaced under our new regulatory regime; and

2.1.4 our current study of fibre services under s 9A of the Act.

New Zealand's telecommunications sector today

2.2 In 2018, the New Zealand telecommunications sector looks very different to when the Act was first introduced in 2001. There have been significant changes in regulations, industry structure and the service mix provided to end-users.

2.3 The Act has been amended several times since it was originally passed in 2001. These amendments have facilitated wholesale and infrastructure competition through mandated access to bottleneck copper services. These same competition principles are being applied to fibre networks. **Attachment C** provides further background on the history of telecommunications regulation in New Zealand and an introduction to fibre networks.

2.4 In the past decades, broadband internet has grown to become an important part of New Zealanders' daily lives. Consumers increasingly demand ubiquitous, high speed connectivity to support an expanding range of applications. Increasingly fibre is needed to support this demand—within mobile networks, as enhancements to legacy copper, through to full replacement of the access network as is occurring under the Ultra-Fast Broadband (**UFB**) initiative.⁸

2.5 The fibre networks being deployed as part of the UFB initiative are being built by Chorus and new entrants, collectively known as the LFCs.⁹ None of these firms provide telecommunications services directly to end-users, but rather provide wholesale services to retailers, known as retail service providers (**RSPs**). The RSPs, who vary significantly in size, compete with each other to sell UFB based fibre services and other telecommunications services to end-users. Several of the larger RSPs also own mobile and/or fixed line access networks which overlap parts

⁸ Information on the UFB initiative can be found at <https://www.crowninfrastructure.govt.nz>.

⁹ Maps showing the plans for these fibre networks are available on Crown Infrastructure Partners' website: <https://www.crowninfrastructure.govt.nz/ufb-initiative/ultra-fast-broadband-extension/>.

of the UFB network, and therefore provide some infrastructure-based competition. Other entities, which are neither part of the UFB initiative nor covered by the new regulations, also operate their own fibre access networks.

- 2.6 Mobile technology has continued to develop, alongside the increase in consumer use of mobile networks. In 2009, the mobile market became more competitive following the launch of a third operator, 2degrees. Most mobile plans now include a data allowance, with some plans now offering 'unlimited' voice and data usage.¹⁰ In some cases, the supply of data to premises over mobile networks is offered as an alternative to traditional fixed line services, using a service known as fixed wireless access (**FWA**).¹¹ The advancements expected with the deployment of 5G networks look set to further challenge traditional fixed line services provided over fibre.
- 2.7 Outside of Chorus' UFB footprint, its copper network continues to provide either a competitive constraint on lower-speed LFC fibre plans, or remains the primary fixed network option in more rural areas. In these rural areas, the Rural Broadband Initiative (**RBI**) is funding enhancements to this copper through 'cabinetisation', or in some cases overbuilding the copper with open access FWA infrastructure.
- 2.8 The last decade has also seen industry consolidation in some parts of the market, including Vodafone acquiring TelstraClear in 2012 to become an integrated supplier of mobile and fixed line access services. The four largest firms, providing both network (fixed and mobile) and retail services, between them earn approximately 90 per cent of the total New Zealand telecommunications sector's revenue of over \$4 billion per annum.¹²
- 2.9 Data and the various services supplied over broadband connections have become increasingly important, with consumers' bandwidth requirements continuing to increase. Most voice traffic is now carried over mobile networks.¹³

¹⁰ This is based on a review of New Zealand mobile network operators' websites as of 2 August 2018. The unlimited data plans typically have restrictions on how the data can be used (e.g. not allowing 'hot spot' connection to smart TVs) and reduced speeds for traffic beyond monthly thresholds.

¹¹ FWA refers to the use of a wireless technology to provide an end-user with access that is restricted to one premise (or location). The service can be provided over a mobile or other wireless technology.

¹² Commerce Commission, "*Final liability allocation determination under sections 87 and 88 of the Telecommunications Act 2001 for 1 July 2016 to 30 June 2017 [2017] NZCC 28*" (7 December 2017), p 8. The sector revenue figure is based on the industry revenue values included in this determination. These values, known as qualified revenue, are typically less than the operating revenue the firms report in their statutory financial statements.

¹³ Commerce Commission, "*Telco Trends 2017*" (20 December 2017) https://comcom.govt.nz/data/assets/pdf_file/0021/63822/2017-Annual-Telecommunications-Monitoring-Report-Infographic-20-December-2017.pdf.

The roll-out of fibre networks in New Zealand

- 2.10 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.
- 2.11 A fibre access network is built by deploying fibre optic cables that contain strands of glass fibres inside an insulated casing which transport signals using lasers and light. Fibre optic networks can send signals over longer distances, and with fewer problems (eg, interference), than the copper-based networks that were widely deployed for telecommunications in New Zealand in the last century.
- 2.12 The remainder of this section explains:
- 2.12.1 the launch of the UFB initiative;
 - 2.12.2 extensions to the UFB initiative in 2017; and
 - 2.12.3 other initiatives for rural broadband and mobile black spots.

Launch of the Ultra-Fast Broadband initiative

- 2.13 The UFB initiative was launched by the government in 2009.¹⁴ 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.
- 2.14 The initiative was intended to deliver social and economic benefits such as improvements to education, health, access to and delivery of government services, and business productivity. It would also allow end-users improved access to entertainment and other internet services.¹⁵
- 2.15 When the UFB initiative was launched, it was intended to cover 75 per cent of New Zealand's population within 10 years (ie, by 2020).

UFB partners were selected through a tender process

- 2.16 To achieve these original objectives, the government provided partial funding and undertook a tendering process to select 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

¹⁴ 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.

¹⁵ Ministry of Business, Innovation and Employment, "Broadband and mobile programmes" (21 December 2017) <http://www.mbie.govt.nz/info-services/sectors-industries/technology-communications/fast-broadband/broadband-and-mobile-programmes>.

the UFB initiative. The amount of Crown funding under the original UFB contracts was over \$1.3 billion.

- 2.17 The government awarded contracts to four partners to deploy the UFB initiative's fibre networks, with Chorus (then part of Telecom New Zealand) receiving the majority of the contracts, including in the Wellington and Auckland areas.
- 2.18 Following Telecom's decision to participate as one of the partners in the UFB initiative, Chorus was structurally separated (demerged) from Telecom on 30 November 2011. Telecom subsequently renamed itself Spark New Zealand Limited.
- 2.19 The other three partners 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 a corporate group(s) that has existing investments in the regulated electricity distribution network in the area(s) in which the LFC is deploying its fibre network.

Fibre service providers are required to operate a wholesale-only model

- 2.20 The UFB initiative required Chorus and the other LFCs to operate based on a wholesale-only model, under which they supply fibre access services to RSPs. The RSPs then sell retail services to end-users, which combine the wholesale fibre access service with value-added services (for example, customer support, in-home equipment such as Wi-Fi routers, corporate network services and access to the internet).
- 2.21 Consistent with the wholesale-only model, LFCs are prohibited from selling fibre-based services directly to end-users. Instead, the UFB providers are required to supply what are known as 'layer 1' and 'layer 2' services to the RSPs.¹⁶ Under this model, one of the things the RSP or end-user must do is install additional equipment at the end-user's premises so that the end-user can connect to the internet and/or other network services (such as corporate networks).
- 2.22 Of these two types of services, the layer 2 services are the ones most frequently supplied for connecting end-users to the fibre access networks. A layer 2 service has electronics at both ends of the fibre cable to provide a bitstream service that allows for the transfer of data. It does not include functionality to determine the

¹⁶ This refers to layers 1 and 2 of the Open Systems Interconnection (OSI) model of network architecture. 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:20269:en>.

physical paths for directing ('routing') end-users' traffic to other networks (such as a website), or to ensure that the entire content of a file or message is received.¹⁷

- 2.23 LFCs are required to provide RSPs with layer 1 services of a direct (point-to-point) fibre access service (**DFAS**). From 1 January 2020 they are also required to provide an unbundled point-to-multipoint service.¹⁸ These services are wholesale services where the wholesale customer (such as an RSP) provides its own electronics at one or more points in fibre access network.

Fibre service providers and the Crown entered into deeds and commercial agreements

- 2.24 In keeping with the 2011 amendments to the Act, Chorus and the other LFCs entered into deeds of open access undertakings with the Crown. These enforceable undertakings gave effect to key aspects of how the Act required the UFB initiative to be implemented and are enforced by the Commission.
- 2.25 These deeds continue to have effect after 1 January 2020 and require the fibre service providers to:¹⁹
- 2.25.1 supply unbundled layer 1 services on all parts of their fibre-to-the-premises (**FTTP**) access networks (as defined in s 156AD of the Act) from 1 January 2020;
 - 2.25.2 supply those unbundled layer 1 services on an equivalence basis, so that they offer the same input services, systems and processes to all access seekers, themselves and related parties;
 - 2.25.3 supply all wholesale services that are provided using, or that provide access to unbundled elements of, their FTTP access networks on a non-discriminatory basis, so that the providers are obliged not to discriminate in how they treat access seekers, related parties and themselves; and
 - 2.25.4 comply with certain obligations concerning annual reporting to us, self-reporting of breaches, and handling of complaints.
- 2.26 CIP also entered into a series of commercial agreements with Chorus, the other LFCs and the UFB partners in order to implement the UFB initiative. These agreements are comprehensive, and include:

¹⁷ The latter two tasks are performed by layer 3 (network layer) and layer 4 (transport layer) of the OSI model respectively.

¹⁸ DFAS is currently available and explained in figure 3.4. The future unbundled layer 1 fibre service has different technical specifications and is illustrated in figure 3.5. It is worth noting that the specifications for the future products have not been specified yet.

¹⁹ For information on the deeds and other UFB agreements, see <https://www.crowninfrastructure.govt.nz/crown-partners/agreements-with-ufb-partners/>.

- 2.26.1 price caps for specified services;
- 2.26.2 financial funding through a public-private partnership model;²⁰
- 2.26.3 sharing of upside and downside risk, such as risk during the build phase and demand risk;²¹
- 2.26.4 lines of business restriction for the UFB network to a wholesale-only model;
- 2.26.5 technical requirements for providing unbundled layer 1 services from January 2020;
- 2.26.6 expectations around the timing of the network build; and
- 2.26.7 expectations for the service levels to be provided to RSPs and by implication to end-users.²²

Access to the Ultra-Fast Broadband networks

- 2.27 In building their UFB networks, Chorus and the other LFCs use fibre cables to extend their fibre networks all the way to end-users' premises. The UFB networks also access a number of non-building access points (**NBAP**), such as street lights on council road reserves.
- 2.28 The use of fibre to connect end-users to the network distinguishes fibre networks from Vodafone's hybrid fibre coaxial (**HFC**) network and Chorus' copper-based digital subscriber line (**DSL**) technology, which use coaxial cable and copper respectively to connect end-users to the rest of the network.
- 2.29 To access the UFB networks, end-users must have a fibre network running past their premises. A technician then needs to install a cable to connect the premises to the fibre network (often called a lead-in) and equipment inside the premises.

2017 Ultra-Fast Broadband initiative extensions

- 2.30 In January and August 2017, new agreements with Chorus and the other LFCs were announced, extending and speeding up the UFB deployment schedule. Collectively, this saw a further \$437 million of Crown investment.

²⁰ There were differences in the specifics of these agreements, including that Chorus had a different funding model to the other LFCs.

²¹ The nature of this risk sharing depends on the contract and typically involves a range of financial instruments.

²² This included expectations around network performance, handling of faults and the connection of new customers to each network.

- 2.31 This extension (**UFB2**) will expand coverage to around 393 cities and towns, representing approximately 87 per cent of the New Zealand population, and is expected to be completed by the end of 2022. Table 2.11 summarises the UFB initiative's investments and coverage, including the expansions under UFB2.²³

Table 2.1 Summary of Ultra-Fast Broadband Investment and coverage

UFB phase	Crown investment	Premises covered	End-users (such as households and businesses) covered	Population covered (%)
UFB phase one	\$1.345 billion	~1,174,000	~1,526,000	~75.4%
UFB phase two (January 2017 expansion)	\$307 million	~200,000	~216,000	~8.6%
UFB phase two (August 2017 expansion)	\$130 million	~60,000	~60,000	~1.9%
Total	\$1.782 billion	~1,434,000	~1,801,000	~86% (87% with privately funded fibre)

- 2.32 At the end of June 2018, 605,345 end-users in New Zealand were connected to a UFB fibre service, which represented a 44.1 per cent uptake of the 1,373,467 premises passed.²⁴
- 2.33 **Table 2.2** summarises the UFB coverage and ownership structures for the fibre service providers.

²³ Crown Infrastructure Partners “Fact Sheet: Government broadband and mobile programmes” (7 March 2018) <https://www.crowninfrastructure.govt.nz/wp-content/uploads/2018/03/UFB-and-RBI-programmes-fact-sheet-7-March-2018.pdf>.

²⁴ Ministry of Business, Innovation and Employment “Broadband deployment update” (June 2017). This figure does not directly correspond to those used in table 2.1, as different sources were used. <http://www.mbie.govt.nz/info-services/sectors-industries/technology-communications/fast-broadband/documents-image-library/december-17-quarterly-broadband-update.pdf> at page 1.

Table 2.2: Summary of UFB providers²⁵

Fibre service provider	Regions	End-users able to connect (June 2018)	Ownership
Chorus	Auckland, Wellington, Dunedin, Hawkes Bay, Wairarapa, Nelson, Southland and other regions to varying extents	932,000	Publicly listed company.
Enable Networks	Christchurch, Rangiora and Rolleston	200,000	Subsidiary of Enable Services Limited, which is owned by Christchurch City Holdings Limited, and which in turn is owned by Christchurch City Council.
Northpower Fibre	Whangarei	25,000	The largest shareholder is Northpower Limited which is an electricity distribution business. Other shares are held by CIP.
Northpower LFC2 (became an LFC in 2017) ²⁶	Northland		Subsidiary of Northpower Limited.
Ultrafast Fibre	Waikato, Taranaki, Tauranga and Tokoroa	210,000	Owned by Waikato Network Limited which is 85% owned by WEL Networks Limited and 15% by Waipa Networks Limited (both electricity distribution businesses).

²⁵ End user numbers are derived from multiple sources for which there is some variance. See Ministry of Business, Innovation and Employment “Broadband Deployment Update” (June 2018) <https://www.mbie.govt.nz/info-services/sectors-industries/technology-communications/fast-broadband/documents-image-library/jun-2018-quarterly-broadband-report.pdf>; Chorus “FY18 Investor Presentation” (27 August 2018) <https://company.chorus.co.nz/reports>; Enable “Enable doubles fibre broadband speeds celebrating completion of network across greater Christchurch” (1 June 2018) <https://www.enable.net.nz/media-releases/enable-doubles-fibre-broadband-speeds-celebrating-completion-of-network-across-greater-christchurch/>.

²⁶ In the case of the Northpower group, the UFB extension (also known as UFB2 and UFB phase two) contract resulted in the creation of a new subsidiary called Northpower LFC2 Limited.

Rural broadband initiative, commercially funded fibre and mobile networks

- 2.34 Alongside the launch of the UFB initiative, the government announced the RBI in 2012. RBI was then expanded in 2017 (**RBI2**). RBI and RBI2 are also managed by CIP.
- 2.35 RBI and RBI2 provided improved broadband coverage to many premises in rural New Zealand where it would not be commercially cost effective to build UFB networks.²⁷
- 2.36 RBI and RBI2 do not use the same network architecture as the UFB initiative. Rather:
- 2.36.1 RBI uses a mix of upgrades to existing copper fixed line access services and Vodafone’s mobile network, with the latter being used to provide FWA services; and
- 2.36.2 RBI2 uses a combination of point-to-point radio links provided by firms known as Wireless Internet Service Providers (**WISPs**), and 4G mobile networks, which are also used to provide FWA services.²⁸ The 4G FWA services will be provided by the Rural Connectivity Group which was established by New Zealand's existing mobile network operators.²⁹
- 2.37 The government also introduced the mobile black spot fund that improves mobile coverage on highways and in tourist areas.
- 2.38 Further information on these three initiatives can be found on the website of the Ministry for Business, Innovation and Employment (**MBIE**).³⁰
- 2.39 Mobile networks are also being used to provide FWA services as an alternative means to access the internet in areas covered by FFLAS. In the coming years, the launch of improved mobile technology, known as 5G, will increase the appeal of mobile networks for offering FWA services.
- 2.40 Not all fibre access networks in New Zealand have been funded under the UFB initiative. Some investment was made before the UFB initiative started, such as in

²⁷ Ministry of Business, Innovation and Employment, “Broadband and mobile programmes” (21 December 2017) <http://www.mbie.govt.nz/info-services/sectors-industries/technology-communications/fast-broadband/broadband-and-mobile-programmes>.

²⁸ 4G is the current level of in-use mobile technology in New Zealand. However some newer mobile network upgrades use 4.5G technology which offers faster speeds to end-users with compatible devices.

²⁹ <https://www.crowninfrastructure.govt.nz/rural-connectivity-group/>

³⁰ Ministry of Business, Innovation and Employment, “Broadband and mobile programmes” (21 December 2017) <http://www.mbie.govt.nz/info-services/sectors-industries/technology-communications/fast-broadband/broadband-and-mobile-programmes>.

commercial areas of larger cities, and other commercially funded investment has occurred since. This includes Chorus' investment in areas that overlay or are adjacent to the other LFCs' fibre networks, and also Unison's fibre network in parts of Hawkes Bay, Taupo and Rotorua.³¹

The current information disclosure regime for fibre services

2.41 We first introduced an information disclosure regime for fibre following the 2011 amendments to the Act. These provisions require the LFCs to provide us with information about their fibre networks.

2.42 The purpose of the first information disclosure regime for fibre was described in s 156AT:

The purpose ... is to promote competition in telecommunications markets for the long-term benefit of end-users of telecommunications services in New Zealand by requiring LFCs who have given undertakings in relation to certain services to provide reliable and timely information to the Commission to enable it to record over time the costs and characteristics of LFC fibre networks to inform the Commission's statutory processes and determinations.

2.43 Under s 156AW, we may publish reports on, and summaries and analyses of, the information collected under the 2011 information disclosure provisions. So far we have not exercised this power.

2.44 These information disclosure provisions will be repealed when the new information disclosure requirements for FFLAS in Part 6 of the amended Act take effect.³²

2.45 This means that fibre service providers must continue to provide us with information under the current requirements until they are subject to the new information disclosure requirements under Part 6. In practice this covers all disclosure periods that commence before the implementation date.³³

Data collected under the 2011 information disclosure regime may be helpful in implementing FFLAS regulation

2.46 Following consultation, we issued two determinations in June 2012 setting information disclosure requirements—one for Chorus and one for the other LFCs. The determinations required the fibre service providers to submit a range of information to us. This included expenditure on building the UFB networks; revenue earned and operating costs incurred from supplying fibre services;

³¹ <https://www.unison.co.nz/tell-me-about/fibre>.

³² Section 2(2).

³³ Refer to part 2A s 8(1) and (2). For an explanation of implementation date, see s 3.28-3.31 and Table 4.1.

progress on the roll-out; and details about the assets deployed in the networks' coverage.³⁴

- 2.47 The 2011 information disclosure provisions in the Act did not require us to first develop input methodologies for the purposes of making the determinations. The disclosure requirements in these determinations largely relied on the accounting standards the providers use when preparing their annual statutory reports.
- 2.48 We now hold six years of data which goes back to the launch of UFB in 2011.³⁵
- 2.49 While we consider this data will be helpful in implementing our new regulatory regime, we will need to determine the input methodologies and apply these to the new Part 6 information disclosure requirements to reflect the legislative changes and the progress of the UFB initiative.

Differences between the 2011 information disclosure requirements and information disclosure for FFLAS

- 2.50 The provisions for the 2011 information disclosure requirements differ from the new provisions for FFLAS in important respects.
- 2.51 Under the 2011 information disclosure regime, the information is provided to us directly, rather than being published for a wider audience. It also was not underpinned by upfront input methodologies. This reflects the purpose of this initial information disclosure to record the information over time so that we could use it for a range of statutory purposes. The information is to assist us to implement any future regulation of the fibre networks (as we are now required to do). In setting the 2011 information disclosure requirements we focused on building our database of information about the UFB networks to meet likely future needs.

Fibre services study under section 9A of the Act

- 2.52 We commenced a study of fibre services in April 2018 to help us prepare for the future regulation of fibre networks.³⁶ We are undertaking this study under s 9A of the Act, which allows us to conduct studies into any matter relating to the telecommunications industry or the long-term benefit of consumers of telecommunications services.

³⁴ Copies of these determinations can be found on our website at: <https://comcom.govt.nz/regulated-industries/telecommunications/regulated-services/fibre-regulation/ultrafast-broadband-information-disclosure>.

³⁵ Note we are due to receive the 2017/18 data in November.

³⁶ See Commerce Commission "9a fibre services study in New Zealand - Terms of reference" (27 April 2018) <https://comcom.govt.nz/regulated-industries/telecommunications/regulated-services/fibre-regulation/fibre-services-study#projecttab>.

- 2.53 In this study we are collecting information from Chorus and the other LFCs to give us a better understanding of their networks, fibre services, network operations and business practices. We are likely to use the findings of this study to inform our decision making as we develop and implement our new regulatory regime under the amended Act.
- 2.54 We have issued three information requests and spoken with representatives from each fibre service provider:
- 2.54.1 The first request sought information on accounting policies, related parties, recording of fibre connections, geographic information systems data, products, asset management, and data provided to CIP.
 - 2.54.2 The second request sought information on the quality dimensions of fibre networks, such as the metrics and processes used to report on quality, end-user expectations about quality, and how suppliers approach planning quality of service and end-user experience.
 - 2.54.3 The third request related to Chorus only, and sought information on the relationship between FFLAS and its copper network.
- 2.55 We are currently reviewing the information we have received and will publish a summary of our findings at the conclusion of the study.
- 2.56 **Chapter 4** considers how we will assess the relevance of this work to the development of our new regime.

3. Overview of our fibre regulatory regime

- 3.1 This chapter provides an overview of our new regulatory regime for FFLAS, following a review of the Act by the Minister.³⁷ Specifically, it:
- 3.1.1 describes how a new regulatory framework for FFLAS has been created following the review of the Act;
 - 3.1.2 outlines the key features of our new regulatory regime for FFLAS; and
 - 3.1.3 summarises other amendments made to the Act that relate to the Commission's work, such as those that affect copper services.

Ministerial review led to the new regulatory framework

- 3.2 This section:
- 3.2.1 provides background to the Minister's review of the Act; and
 - 3.2.2 explains that the new regulatory framework under the amended Act is largely based on the existing model in Part 4 of the Commerce Act 1986 (**Part 4**).

Background to the review of the Act

- 3.3 In 2015, the Minister commenced a review of the Act. The aim of this review was to make sure New Zealand had the right laws for communications networks after 2020, to meet the needs of consumers and businesses, and to help keep New Zealand's economy growing.³⁸
- 3.4 This statutory review was required under 2011 amendments to the Act. Specifically, s 157AA required the Minister, by no later than 30 September 2016, to commence a review of the policy framework for regulating telecommunications services in New Zealand. This review was to take account of developments in market structure and technology, and competitive conditions in the telecommunications industry at the time of the review (including the impact of fibre, copper, wireless, and other telecommunications network investment).
- 3.5 The review was required to consider whether the existing regulatory framework was still the most effective to achieve specified outcomes, or if an alternative

³⁷ The work in conducting the review was carried out by MBIE on behalf of the Minister.

³⁸ Ministry of Business, Innovation and Employment "Have your say: Consultation: Review of the Telecommunications Act 2001 (Closed)" (8 July 2016) <http://www.mbie.govt.nz/info-services/sectors-industries/technology-communications/communications/regulating-the-telecommunications-sector/review-of-the-telecommunications-act-2001/consultation-8-sept-2015>.

framework would better achieve the outcomes.³⁹ Details about this review can be found on MBIE's website.⁴⁰

- 3.6 Following the review, the then Minister decided that a new regulatory framework was required for FFLAS. The resulting Bill passed its third reading on 7 November 2018. Once it receives Royal Assent, the Bill will create the new regulatory framework for FFLAS and introduce changes for other telecommunications services, such as copper services.

The new regulatory framework for fibre is based on Part 4 of the Commerce Act

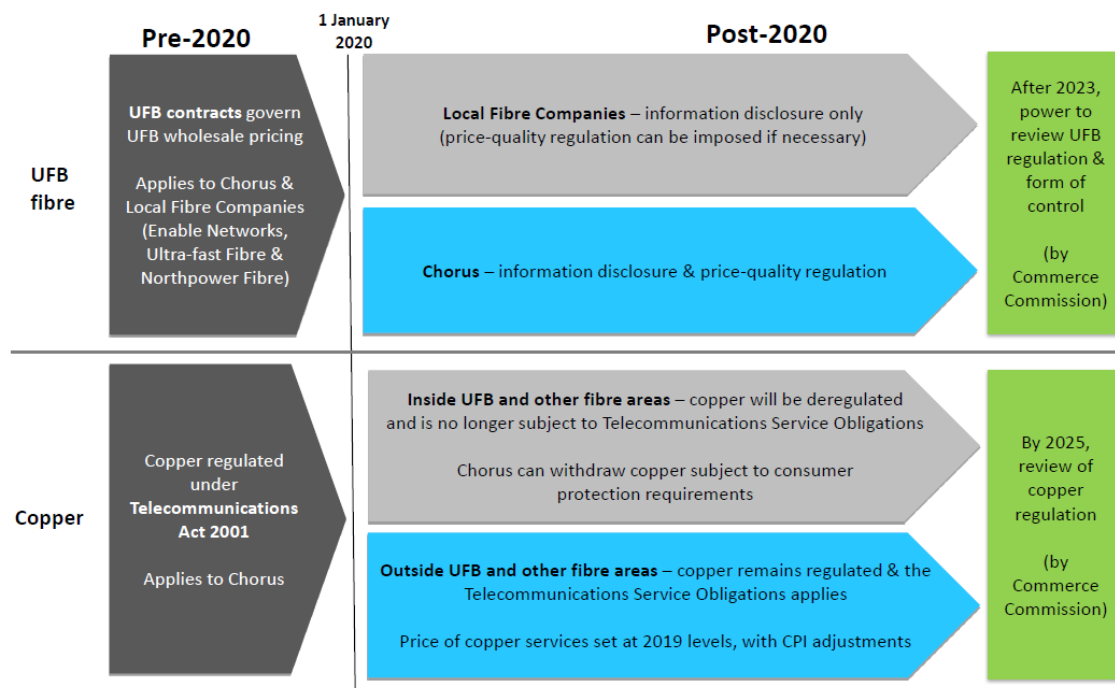
- 3.7 The new framework, which will be included in a new Part 6 of the amended Act, is based on Part 4, with certain differences as discussed in **Chapter 5**, to take account of the features of telecommunications services markets. Part 4 of the Commerce Act regulates utilities including electricity lines, gas pipelines and airports.
- 3.8 Figure 3.1 presents MBIE's overview of the new regulatory framework for FFLAS (shown in the diagram as 'UFB fibre') and legacy copper services.⁴¹ This diagram was published before the final legislation was available, so is included as an indicative summary. The future dates shown may be extended (as discussed in **Chapter 4**).

³⁹ The outcomes include: promoting competition for the long-term benefit of end-users; promoting the legitimate commercial interests of access providers and access seekers; encouraging efficient investment for the long-term benefit of end-users; and supporting innovation in telecommunications markets, or deregulation where sufficient competition exists.

⁴⁰ MBIE, "Final Decisions (June 2017)" (21 September 2017) <http://www.mbie.govt.nz/info-services/sectors-industries/technology-communications/communications/regulating-the-telecommunications-sector/review-of-the-telecommunications-act-2001/final-decisions-june-2017>.

⁴¹ MBIE, "Diagram: Final regulatory framework" (21 September 2017) <http://www.mbie.govt.nz/info-services/sectors-industries/technology-communications/communications/regulating-the-telecommunications-sector/review-of-the-telecommunications-act-2001/telco-review-diagram.pdf>.

Figure 3.1: New fibre regulatory framework



Source: MBIE 2017

Key features of our regulatory regime for fibre

3.9 This section:

- 3.9.1 describes the key features of our new regulatory regime for fibre;
- 3.9.2 explains that we will be required to make price-quality paths and information disclosure determinations, underpinned by input methodologies;
- 3.9.3 summarises the building blocks approach to regulation, which we propose to apply when implementing price-quality and information disclosure regulation;
- 3.9.4 introduces the concepts of anchor services, DFAS and unbundling, which will be individually regulated under our new fibre regime; and
- 3.9.5 outlines the statutory timeframes for implementing the new regulatory framework.

Key features of our regime

- 3.10 The goal of the Amendment Act is to support a communications environment that provides high-quality and affordable services for all New Zealanders, and enables the New Zealand economy to grow, innovate and compete in a dynamic global environment.⁴² For FFLAS regulation, the Amendment Act notes the importance of preventing excessive profits arising from monopoly services and ensuring regulation that is stable and predictable.⁴³
- 3.11 Figure 3.2 outlines key features of our new regulatory regime for FFLAS, as specified in the new Part 6 of the Act and contemplated by the forthcoming regulations.⁴⁴

Figure 3.2: Key features of our new regulatory regime for FFLAS⁴⁵

<p>Who will be regulated and how?</p> <ul style="list-style-type: none"> • Chorus will be subject to both price-quality and information disclosure regulation on the implementation date. • The other LFCs (Enable Networks, Northpower and Ultrafast Fibre) will be subject to information disclosure only. Price-quality regulation can be imposed after the implementation date if necessary. <p>Regulation under Part 6</p> <ul style="list-style-type: none"> • We must determine input methodologies 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 price-quality path; and capital expenditure projects. • We must apply the input methodologies to determine information disclosure and price-quality regulation by 1 January 2020, but: <ul style="list-style-type: none"> ○ the Minister can defer this date by up to two years, if we make a written request; and ○ if implementation is deferred, current prices (plus an annual CPI adjustment) will be rolled over. • The initial value of assets for each supplier is based on the actual costs incurred in constructing or acquiring the assets (together with financial losses between 1/12/2011 and the implementation date).

⁴² Telecommunications (New Regulatory Framework) Amendment Bill, 293-1 (explanatory note) at 1.

⁴³ (Explanatory note) at 2.

⁴⁴ 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 regulations. We will review our approach once the further regulations have been made. The 'implementation date' is described in more detail in paras 3.23 to 3.25.

⁴⁵ Note: This figure includes the assumptions set out in Chapter 1.

Key features of price-quality regulation

- The initial regulatory period will be three years, followed by regulatory periods of 3-5 years.
- A revenue cap, with a wash-up mechanism, will apply for at least the initial regulatory period, combined with individual price caps for anchor services and DFAS.
- Quality standards, and any associated incentives, must be specified.
- Prices charged by a supplier for various FFLAS are required to be geographically consistent.
- We can smooth allowed revenues or prices over two or more regulatory periods if necessary or desirable to minimise price shocks to consumers or undue financial hardship to suppliers.

Anchor services, DFAS and unbundled fibre services

- Suppliers subject to price-quality regulation must provide anchor services (expected to be 100/20Mbps broadband, and voice) and DFAS. The maximum prices charged for these services until the end of the initial regulatory period will be the contract prices immediately before implementation date plus an annual CPI adjustment.
- The unbundled fibre service is to be provided in accordance with the open access deeds (no price cap initially).

Price-quality regulation reviews

- The specification of the anchor services can be reviewed before the start of each regulatory period, including the first.
- We can review the features of price-quality regulation from three years after the implementation date (and then at intervals of no less than five years), including: the revenue cap, whether the terms for DFAS should be amended, and/or whether terms for the unbundled fibre service should be introduced.
- We can review, at any time after the implementation date, whether some or all FFLAS should be removed from price-quality regulation, or completely deregulated, if reasonable grounds to do so exist.
- Where we carry out a review, we must make a recommendation to the Minister, who may then make a recommendation to the Governor-General to change the relevant regulations.

Key features of information disclosure regulation

- Fibre service 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 fibre service providers, their relative performance, changes in their performance over time, and their ability to extract excessive profits.

We will be required to make price-quality path and information disclosure determinations

- 3.12 The new Part 6 of the amended Act will introduce a form of utility-style regulation that is currently 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.

- 3.12.1 Under price-quality regulation, we are required to determine the maximum revenue or prices Chorus is allowed to earn from its FFLAS, and the quality at which those services must be provided. This is implemented through 'price-quality paths'.⁴⁶
- 3.12.2 Under information disclosure regulation, all regulated fibre service providers will be required to disclose information that allows us and stakeholders to assess whether the purpose of our new regime is being met.
- 3.13 Price-quality paths and information disclosure determinations will be underpinned by input methodologies—the development of which is the focus of this paper. The input methodologies are the upfront rules, requirements and processes for regulation that are intended to promote certainty for suppliers, access seekers and end-users.
- 3.14 **Chapter 5** explains input methodologies, price-quality regulation and information disclosure regulation in more detail.

We propose that a building blocks approach can be used to implement price-quality and information disclosure regulation

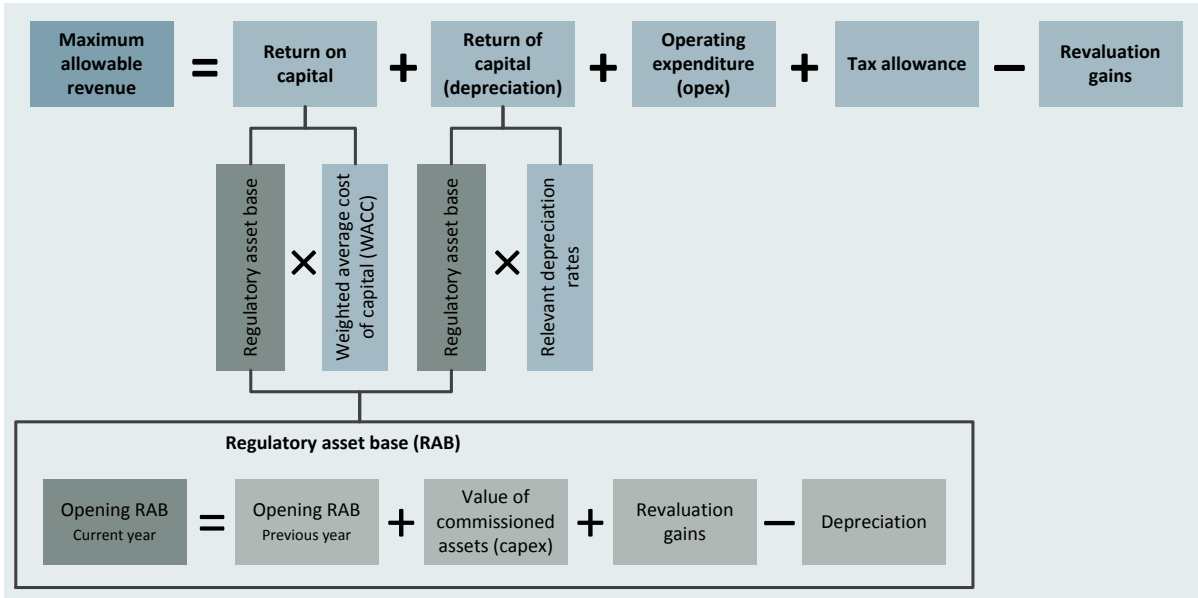
- 3.15 Price-quality regulation is often based on a building blocks model (**BBM**). BBM is an internationally recognised method of implementing price-quality regulation, and has been adopted in the context of Part 4. As discussed in **Chapter 5**, we propose adopting a BBM approach.
- 3.16 Incentive-based 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 the firm is allowed to earn is specified up front. This provides a target for profitability that the supplier can outperform by becoming more efficient. Efficiencies are then shared with consumers at the next reset in the form of reduced revenues or prices.⁴⁷
- 3.17 The BBM approach is used to calculate the maximum allowable revenue (or prices) based on delivering the regulated services over the regulatory period. Under the BBM, we calculate the value of the network that is used to supply the regulated services; this forms the regulated supplier's regulatory asset base

⁴⁶ The definition of 'price' in s 164 allows us to set maximum prices or to cap total revenue. However, until a review occurs and the relevant regulations are made, we are limited 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 will be free to structure its prices for other FFLAS as it sees fit, provided that it complies with the overall revenue cap.

⁴⁷ The 'strength' of these incentives can be altered by increasing or decreasing the share of any efficiency gain retained by the suppliers.

(RAB). We then use the RAB, along with the supplier's other costs—together, the building blocks—as a basis for calculating the allowed revenue or prices (see Figure 3.3).

Figure 3.3: Calculation of maximum allowable revenues under BBM



3.18 One way a regulated fibre supplier may seek to cut its costs and increase profitability is to decrease quality of service—for example, by reducing maintenance costs which may lead to more frequent outages. Therefore, the amended Act will require us to set price-quality paths which also include quality standards. The price-quality paths may include incentives on the supplier to maintain or improve its quality of supply.⁴⁸

3.19 The BBM can also be used as part of information disclosure regulation to underpin the assessment of returns.⁴⁹ A regulated supplier's returns are able to be compared to our estimate of the cost of capital to consider whether excessive profits are being limited, and whether financial capital is being maintained.

How input methodologies are used in a building blocks approach

3.20 The input methodologies will set out our approach to calculating the building blocks shown in Figure 3.3. For example:⁵⁰

⁴⁸ s 193(3).

⁴⁹ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (December 2010) at paras 2.8.29-2.8.33.

⁵⁰ Input methodologies for tax and capex are not covered in detail in this paper. We will be consulting on these topics in later papers.

- 3.20.1 the cost of capital input methodology will set out how the weighted average cost of capital (**WACC**) will be determined;
 - 3.20.2 the asset valuation input methodology will set out how each supplier's RAB will be valued, as well as the approach to depreciation and treatment of revaluations;
 - 3.20.3 the cost allocation input methodology will set out how asset values (ie, the RAB) and operating expenditure will be allocated between activities, businesses, access seekers, regulated services, or geographic areas;
 - 3.20.4 the tax input methodology will set out how the tax allowance is calculated; and
 - 3.20.5 the capital expenditure input methodology will set out the requirements, criteria, timeframes and processes for evaluating capital expenditure projects (value of commissioned assets).
- 3.21 In addition, the regulatory processes and rules input methodology can prescribe the specification and definition of prices and revenues, certain costs that can be passed through to revenue or prices, and the circumstances in which a price-quality path could be reconsidered within a regulatory period.
 - 3.22 We are also required to determine an input methodology for quality dimensions, which will underpin the quality standards specified in a price-quality path and reported as part of information disclosure. Quality dimensions are discussed in more detail in paragraphs 7.101 to 7.113.

Statutory timeframe for implementing the new regulatory framework

- 3.23 The new framework introduces the concept of the 'implementation date' for several of the requirements. It also sets out the timing for a series of regulatory reviews that we can carry out.
- 3.24 Under the new framework, in order to implement the new regime, we:
 - 3.24.1 must set the input methodologies before we make the s 170 determinations that implement information disclosure and price-quality regulation;
 - 3.24.2 must make the s 170 determinations that implement information disclosure and price-quality regulation after the input methodologies, but before the implementation date; and
 - 3.24.3 are able to undertake future reviews of the features of price-quality regulation, including any prescribed descriptions, conditions, period and maximum prices of anchor services, DFAS and the unbundled fibre service.

- 3.25 The default implementation date is 1 January 2020, but, under the amended Act, it could be extended by the Minister for up to two years.⁵¹ The timetable set out in this paper assumes that we will request and be granted a two-year extension.⁵²
- 3.26 **Chapter 4** sets out further details on the implementation timeframes, including summaries in Figure 4.1 and Figure 4.22.

Other services regulated under the new fibre framework

- 3.27 The new regulatory framework for FFLAS also introduces several categories of individually regulated fibre services, which will be required to be offered by a regulated fibre service provider who is subject to price-quality path regulation from the implementation date, or 1 January 2020 in the case of unbundled fibre services for parts of the network built under UFB 1. These services include:
- 3.27.1 anchor services (see ss 197 and 223);
 - 3.27.2 DFAS (see ss 198 and 224); and
 - 3.27.3 unbundled fibre services (see ss 199 and 225).
- 3.28 We expect Chorus will be the only fibre service provider subject to price-quality regulation at the implementation date. Chorus will therefore have to offer the anchor services, DFAS and unbundled fibre services to its wholesale customers (ie, the RSPs) in accordance with any prescribed terms.⁵³ Each of these services is explained in more detail below. This discussion is indicative only, as the details of these services are yet to be prescribed in regulations.

Anchor services

- 3.29 Anchor services are intended to ensure that baseband equivalent voice and basic broadband services are available to end-users at reasonable prices and to act as an appropriate constraint on the price and quality of other FFLAS variants. These objectives are set out in the purpose statement contained in s 206(7).
- 3.30 We understand that there will be two forms of anchor services prescribed in regulations:⁵⁴

⁵¹ Part 2 of Schedule 1AA

⁵² If the implementation date is deferred, the prices applying for FFLAS at the end of 2019 (plus an annual CPI adjustment) will apply during the period of deferral.

⁵³ Under the deeds of open access undertakings with the Crown, the other LFCs will also offer DFAS and unbundled fibre services. The specifications of their DFAS and unbundled fibre services are not subject to regulation under the Act at implementation date.

⁵⁴ MBIE's consultation documents on amendments to the Act set out the envisaged anchor services. Actual speeds and technical specifications are to be set out in regulations to be made by the Minister.

3.30.1 a basic fibre broadband service, which is expected to be 100 Mbps downstream and 20 Mbps upstream; and

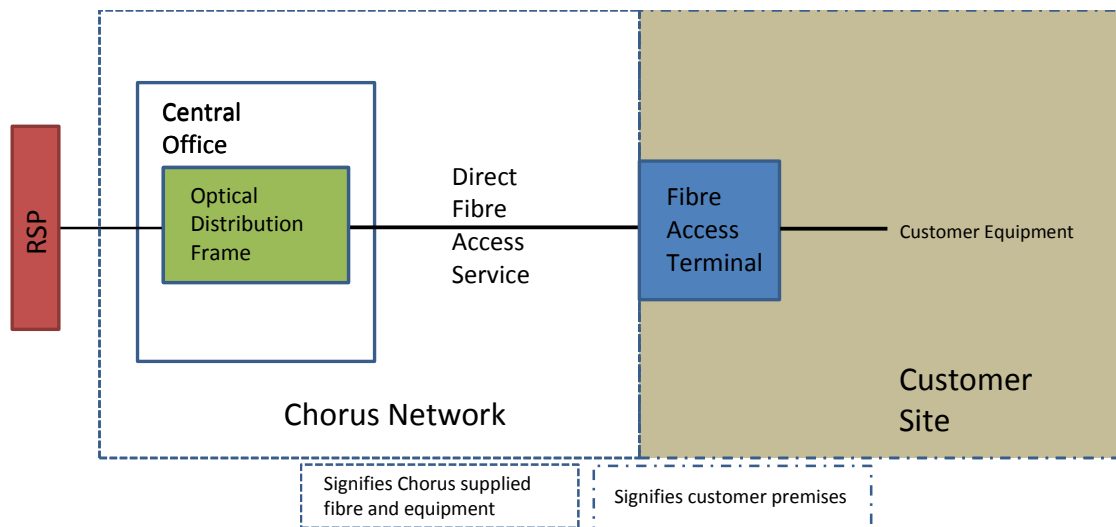
3.30.2 a fibre-based voice service.

- 3.31 Each of these anchor services is a service provided at layer 2, associated with active fibre optic network infrastructure (the electronics that light fibre).
- 3.32 The initial regulations will prescribe the terms of each of the anchor services, which can include the prescribed description of the service, the conditions, the period during which the service is to be offered and the maximum price that a regulated fibre service provider subject to price-quality regulation may charge for the service.
- 3.33 We may, before the start of each regulatory period (including the initial regulatory period), review whether, and how effectively, an anchor service meets the purpose of anchor services and can recommend a change to the regulations for an anchor service where we consider this would better meet the purpose of anchor services in s 206(7). Section 166 will also apply when we consider our recommendations.
- 3.34 Accordingly, when we review the anchor services, we must ensure that that any recommendations to change the description of an anchor service fulfils the purposes of the anchor services and it is in that context that s 166 will apply to guide our decision making.

Direct fibre access service

- 3.35 DFAS is generally understood to be a service that allows RSPs to purchase access to dedicated parts of the fibre network to develop their own tailored services using their own equipment at the customer site. It is typically used to provide services to large customers or to support other telecommunications services. For example, an important application of DFAS is connecting mobile cellular network sites (masts or towers) back to cellular providers' own networks.
- 3.36 DFAS involves the provision of a layer 1 service, associated with passive fibre optic network infrastructure. Figure 3.4 provides an indicative illustration of DFAS.

Figure 3.4: Direct fibre access service



Note: DFAS is yet to be prescribed in regulations, and this diagram reflects only a general understanding.

Unbundled fibre service

- 3.37 An unbundled fibre service is a wholesale service that allows an access seeker (such as an RSP) to purchase access to the fibre cable network and use its own electronics or equipment to provide services to particular customers. The unbundled fibre service purchased by the access seeker is a layer 1 service (associated with passive fibre optic network infrastructure). The service purchased by the customer from the access seeker is a layer 2 (or above) service associated with active fibre optic network infrastructure.
- 3.38 A key benefit of unbundling is the potential to introduce the prospect of competition (and therefore efficiencies) to the network at layer 2. For example, unbundling could provide an incentive for the FFLAS providers to lower their costs or invest in upgrading their layer 2 infrastructure. Competition through unbundling may also allow for greater differentiation in services. With no prospect of competition (ie, no layer 1 unbundling) and in the absence of other regulatory incentives, there would be little or no incentive for a FFLAS provider to pursue these measures.
- 3.39 While the unbundled fibre service involves the provision of a layer 1 service, it differs to the DFAS discussed above. Whereas DFAS is typically a point-to-point service used for tailored applications, the unbundled fibre service is defined in the amended Act as being a point-to-multipoint service and would generally apply to services ultimately provided to mass market retail and business customers.
- 3.40 The UFB network specification ensures the network is built to allow unbundling. It required that two fibres be provisioned by Chorus and the other LFCs to each end-

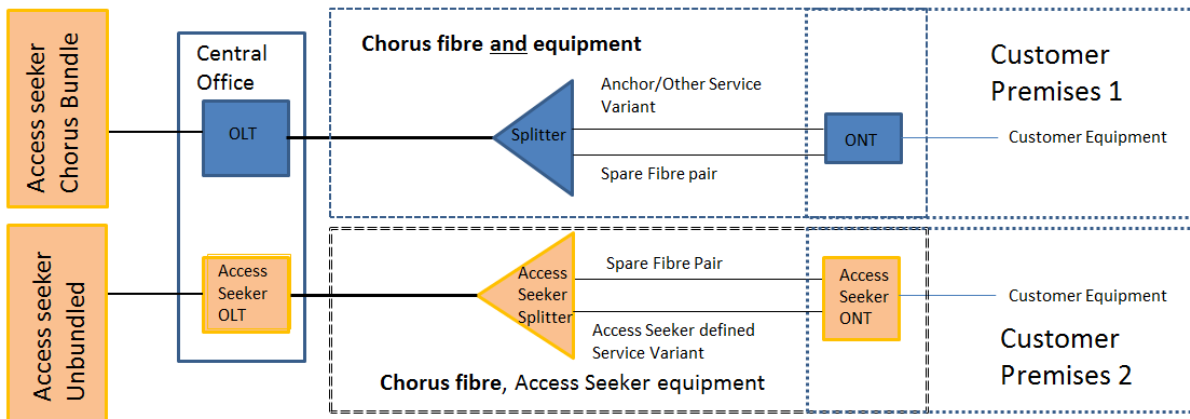
user premises,⁵⁵ to allow for physical unbundling in future. This requires the access seeker to provide their own terminating equipment (ie, OLT and ONT) and splitter, while using Chorus or LFC fibre to access the customer. This is in contrast to the current 'bundled' service, where Chorus supplies the terminating equipment, splitter and the fibre (Figure 3.5 provides an indicative illustration).

3.41 UFB providers are required to provide unbundling for UFB1 from January 2020 and for UFB2 from January 2026, based on undertakings previously given (s 156AD). The undertakings require services to be offered on a non-discriminatory and equivalence of inputs basis.

3.42 Section 225 of the amended Act provides for regulations for an unbundled fibre service. The regulations may prescribe the service description, conditions, timeframe and maximum price for the service. Section 225(6) states that the Minister must not recommend that a service be declared, before 1 January 2026, to be an unbundled fibre service, if the service is provided over a fibre network developed as part of UFB2 (as defined in section 156AB). Therefore the regulated unbundled fibre service must exclude the UFB2 network until 2026.

3.43 As with DFAS, s 199 of the amended Act will only require a fibre service provider that is subject to price-quality regulation (ie, Chorus) to provide an unbundled fibre service. The other LFCs will also provide an unbundled fibre service, under the open access undertakings, but the specification of those services will not be subject to regulations under the Act.

Figure 3.5: Unbundled fibre service



Note: There are other potential ways of achieving unbundling, and the final option(s) offered may not conform to this representation (which is based on one currently proposed method). Regulations to be made will prescribe this service.

⁵⁵ The UFB Agreements require Chorus and the other LFCs to have the capability to offer unbundled layer 1 services from 1 January 2020 in UFB1 areas.

Other amendments to the Act

- 3.44 In parallel with the introduction of the new framework for FFLAS, the amended Act will provide for the existing regulation of copper services to be withdrawn progressively. This is because large parts of the copper network are expected to be superseded by the fibre network.
- 3.45 We will be responsible for monitoring this process to ensure that end-users are not unduly affected by the transition from copper to fibre. In particular, we will be required to:
- 3.45.1 determine 'specified fibre areas', where copper services can be deregulated (which will require us to undertake area-by-area assessments of the availability of fibre); and
 - 3.45.2 develop a 'copper withdrawal code' to govern the process and conditions for withdrawal of copper services, and to ensure end-users are not disadvantaged by the transition.⁵⁶
- 3.46 We intend to consult on these processes separately from our implementation of input methodologies, price-quality regulation and information disclosure regulation for FFLAS.
- 3.47 In the Bill, Parliament has also decided to augment consumer safeguards, providing more regulatory oversight of retail quality standards and dispute resolution processes. These changes are intended to lift the level of consumer service quality in the telecommunications sector.
- 3.48 We will also be consulting separately on the development of our retail service quality work. While the scope of this work will include fibre broadband services, it will focus directly on the retail services provided to end-users, rather than on the wholesale FFLAS products (which are one of many inputs into the retail service).

⁵⁶ Under Schedule 2A, we may develop the code ourselves or require the Telecommunications Carriers Forum to develop the code. We can decide whether or not to approve a draft code.

4. Developing the fibre input methodologies

- 4.1 This chapter explains our proposed process for creating the fibre input methodologies. We developed this process following feedback received at our stakeholder workshop in May 2018.
- 4.2 We have planned our process so that interested stakeholders have the opportunity to provide feedback on our emerging thinking and proposed approach and we in turn have time to consider this input. Specifically, we set out:
- 4.2.1 our indicative timelines for implementing our new regulatory regime for FFLAS;
 - 4.2.2 key dates and deliverables for developing the input methodologies;
 - 4.2.3 our expectations for the consultation process, including the treatment of confidential information;
 - 4.2.4 how we will use our earlier work, including our s 9A study into fibre services;
 - 4.2.5 details of the expert panel we have set up to provide advice on technical matters; and
 - 4.2.6 questions we are seeking feedback on from stakeholders.

Implementing our new fibre regime

- 4.3 Figure 4.1 shows our indicative timeframes for implementing our new fibre regime. While the focus of this paper is on the development of the input methodologies (Phase 1), we have also included our expected timelines for developing price-quality regulation (Phase 2) and information disclosure regulation (Phase 3).
- 4.4 The amended Act will allow us to ask the Minister for an extension to the implementation date of up to two years.⁵⁷ We intend to seek an extension of two years, which would bring the implementation date to 1 January 2022.
- 4.5 This will allow us to progress the input methodologies before developing the detailed provisions of price-quality and information disclosure regulation. We consider that the downsides of a delay in implementing our new regime are outweighed by the benefits of giving us the opportunity to develop the regulatory regime so that it is robust and durable.⁵⁸ We will include a full explanation of our

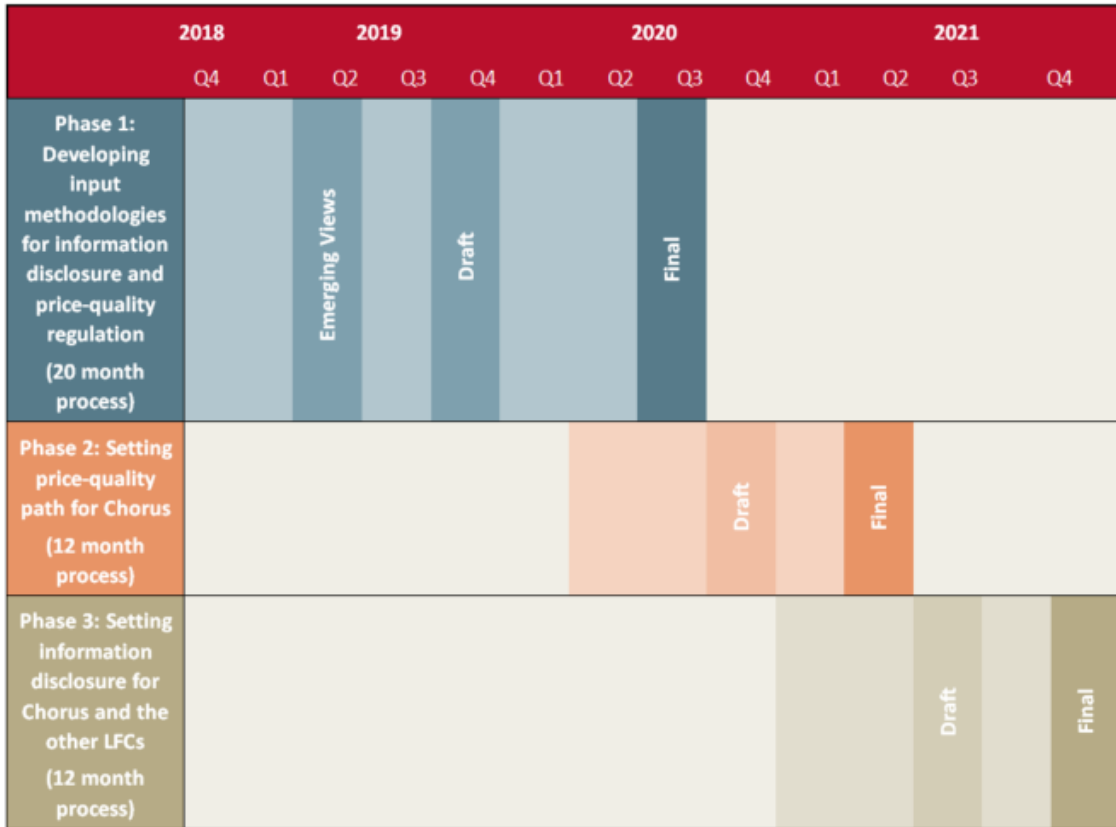
⁵⁷ Part 2 of Schedule 1AA

⁵⁸ We understand that deferring the implementation date will have consequences, including delaying the earliest date at which a revenue cap can be replaced by maximum prices (see ss 194 and 207) and the

reasons for requesting an extension to the implementation date in any extension request we send to the Minister.

- 4.6 The timelines in Figure 4.1 assume we are granted the two-year extension. If we are not granted an extension, or if the extension is for less than two years, we will publish a process paper with revised timelines.

Figure 4.1: Indicative timelines for implementing our new fibre regime



Note: Draft and final in this table refers to both determinations and reasons papers.

- 4.7 These timelines are intended to help stakeholders understand the proposed process, but are indicative at this stage and could change. This is because the exact process for developing Phase 2 (price-quality regulation) and Phase 3 (information disclosure regulation) may depend, among other things, on decisions we make when we set the input methodologies. The process for developing the input methodologies is explained below.

earliest date for anchor services to be cost-based (see s 206(6)). This was contemplated by Parliament when it included the power for the Minister to extend the implementation date.

Statutory process

4.8 The statutory process for determining input methodologies is prescribed in s 178 of the Act:

178 Commission process for determining input methodologies

- (1) When the Commission begins work on an input methodology, it must give public notice of its intention to do so that—
 - (a) outlines the process that will be followed; and
 - (b) sets out the proposed time frames.
- (2) During the course of its work on an input methodology, the Commission—
 - (a) must give public notice of the draft methodology; and
 - (b) must give interested persons a reasonable opportunity to give their views on that draft methodology; and
 - (c) may hold one or more conferences; and
 - (d) must have regard to any views received from interested persons within any time frames set.
- (3) Any work done or action taken (including any consultation) by the Commission on input methodologies before this section commences may be taken into account as part of the work required to be done by the Commission to comply with the requirements of subsections (1) and (2).

Our proposed process

4.9 We will publish a 'notice of intention' to begin work on the input methodologies following commencement of Part 6. We intend this paper to form part of our work to comply with s 178(1) and (2) and to form part of the record of our decision-making process.⁵⁹ We propose to develop the input methodologies over a 20 month period (see Figure 4.1 above).

4.10 We initially planned to develop the input methodologies over an 18 month process.⁶⁰ We received feedback at our May workshop that our proposed timelines would be challenging, with some stakeholders emphasising that quality

⁵⁹ Section 178(3) of the Act provides that "any work done or action taken (including any consultation) by the Commission on input methodologies before this section commences may be taken into account as part of the work required to be done by the Commission to comply with the requirements of subsections (1) and (2)."

⁶⁰ We set out our previously proposed timelines in our funding paper, dated 30 April 2018, available here: <https://comcom.govt.nz/regulated-industries/telecommunications/regulated-services/fibre-regulation/implementation-of-the-new-regulatory-framework-for-telecommunications>.

of process or input methodology content should not be traded off to meet these tight timelines.

- 4.11 Our original 18 month plan was also based on the Bill being enacted by 30 June 2018, which would have resulted in us determining the input methodologies by 31 December 2019. The delay in the Bill's progress through Parliament means our consultation period will now include two Christmas/New Year periods.
- 4.12 To address stakeholder concerns, and in order to avoid requesting stakeholder feedback during Christmas/New Year periods, we now propose developing the input methodologies over 20 months (see Figure 4.1 above).
- 4.13 Figure 4.3 sets out the key milestones and stakeholder engagement opportunities for the input methodology process.
- 4.14 These timelines and processes may change as we progress work on the input methodologies. We will provide regular updates, as appropriate, and we will inform you of any material changes to our process. We are also aware of other regulatory processes that our stakeholders may be involved in (such as work under Part 4 regulation, or other telecommunications work) and the potential impact of multiple consultation processes on your workloads. We have been mindful of this in developing our process and timelines. We welcome feedback on our proposed timetable.

Figure 4.2: Timelines for implementing our new fibre regime



- 4.15 The main consultation steps, and associated documents we will publish, to develop the fibre input methodologies are:
- 4.15.1 **Proposed approach paper (this paper)** – Your first opportunity to be involved is through our consultation on this paper. We are seeking feedback on our proposed process, legal and economic approach, and key issues we have identified in **Chapter 7**. You will have **six weeks** to make written submissions on this paper and then until **25 January 2019** should you wish to make a cross-submission. We will also hold a stakeholder workshop during this consultation period. This is an opportunity for stakeholders to clarify any aspects of our paper and approach and so we can hear early views on relevant matters.
 - 4.15.2 **Notice of intention** – We will publish a notice of intention to begin work on the fibre input methodologies shortly after Part 6 commences. This notice will outline the process and our timeframes, which we are seeking views on as part of this paper.
 - 4.15.3 **Process update paper** – We may publish a process update paper if required, following submissions we receive on this paper. This will outline any changes to our process. At this stage, we do not intend to consult on the content of the update paper.
 - 4.15.4 **Emerging views paper** – In the first half of 2019, we intend to publish a paper setting out our emerging views on the fibre input methodologies. This paper is an opportunity for us to test our emerging thinking on different topics and seek feedback from stakeholders, before making our draft decisions. We intend to provide you with six weeks to make written submissions on this paper and two weeks for cross-submissions. We will also consider holding workshops to explain our thinking and hear stakeholder views.
 - 4.15.5 **Draft decision** – In late 2019, we will publish draft fibre input methodologies determinations, as well as a paper explaining our draft decisions. We intend to provide you with six weeks to make written submissions and two weeks for cross-submissions.⁶¹ We will consider holding workshops on our draft decisions, to hear stakeholder views in person. We may also consider meetings with stakeholders to discuss their submissions.
 - 4.15.6 **Technical consultation** – If required, we may include an additional consultation step before reaching our final decisions. For example, we may undertake consultation with stakeholders on further iterations of the draft

⁶¹ This step will satisfy our obligations under s 178(2)(a) and (b) of the Bill.

text of the determination. The purpose of this consultation would be to ensure that the determination text gives effect to our policy decisions.

- 4.15.7 **Final decision** – In mid-2020, we will publish the final fibre input methodology determinations and a paper explaining our decisions. We will accompany these with a stakeholder briefing.
- 4.16 As we progress the development of the input methodologies, we will also consider the need for additional consultation opportunities, such as working groups and other workshops. We will look to schedule these additional opportunities as needed; for example, if material differences in stakeholder views arise or if we want to explore possible changes in our thinking or approach in between the major consultation steps outlined above.
- 4.17 We may also hold a formal conference as part of our consultation process, with Commissioners and/or members of our expert panel in attendance. We will provide stakeholders with advance notice of any conference by publishing the details on our website and sending an update to those stakeholders on our mailing list.
- 4.18 Under the Act, we have information gathering powers that we may use at various stages of the process to inform our work.

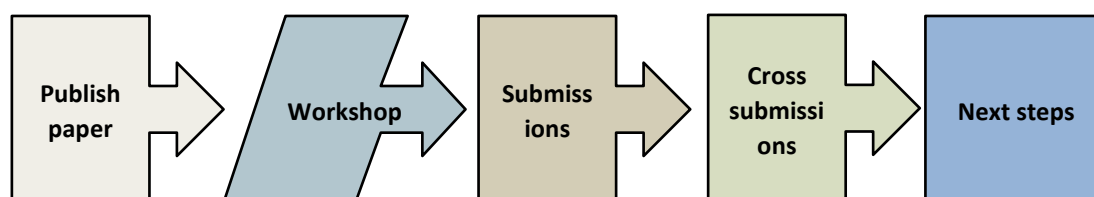
Our approach to consultation

- 4.19 Consultation and stakeholder engagement are key parts of our decision-making process. They promote more robust decision making for our new regulatory regime, by ensuring that we understand stakeholders' views and that our stakeholders understand our reasoning and intent. It also allows stakeholders to see how their input has been considered as part of our decision making.
- 4.20 Throughout our process to develop the input methodologies, you will have a number of opportunities to share your views. This section sets out some of our expectations for that engagement.

Publication of our views

- 4.21 Generally, our consultation will begin when we publish a paper setting out our views and seeking feedback. For some steps, we may also hold a workshop, either before or after we publish a paper.

Figure 4.3: Our consultation approach



- 4.22 We intend to consult on a number of different topics relevant to the input methodologies (such as cost allocation, asset valuation and tax), and we may split our consultation on these topics into different chapters or papers.

Submission process

- 4.23 You will have the opportunity to provide your views on most papers we publish through a written submission process.
- 4.24 Typically, we will also provide an opportunity for you to make cross-submissions on matters raised in others' submissions. Cross-submissions are a way to ensure that we are aware of points of agreement or disagreement on matters raised by other submitters. We ask that any cross-submissions are focused in this way.
- 4.25 It will be important that all submissions and cross-submissions are submitted to us on time, given our timelines for developing the input methodologies. The importance of timelines is recognised in s 178(2)(d) of the amended Act which states that "we must have regard to any view received from interested persons within any time frames set."
- 4.26 Late submissions can delay our process and will only be accepted in exceptional circumstances. Requests to provide late submissions should be made before the due date, at the earliest possible opportunity. We may not be able to fully consider the information provided in late submissions.

Confidential information

- 4.27 We intend to publish submissions and cross-submissions on our website. This allows us to test all information received from stakeholders in a transparent way.
- 4.28 We recognise that there may be cases where submitters wish to provide us with confidential information in their submissions. Any confidential information should be clearly marked and preferably included in an appendix. When confidential information is provided in a submission, you should supply both *confidential* and *public* versions of your submissions. The responsibility for ensuring that confidential information is both clearly identified and not included in a public version of a submission rests with the submitter.
- 4.29 Submitters must also explain the basis for any claims that the information identified in their submissions is confidential. Where commercial sensitivity is asserted, submitters must explain why the publication of the information would be likely to unreasonably prejudice their commercial position or that of another person who is the subject of the information.
- 4.30 Please also note that while we will carefully consider submitters' views on the confidentiality of information, it is ultimately for us, and not submitters, to determine whether or not there is sufficient reason to protect information from disclosure when weighed against the public interest in disclosure.

Workshops

- 4.31 We intend to have a workshop following the publication of this paper and may hold others if we, or our stakeholders, consider it would be useful throughout the process.
- 4.32 Workshops provide an opportunity for us to hear from stakeholders directly. We can clarify our thinking and answer questions as well as ask questions to better understand your views.
- 4.33 Generally we will not make a formal record of workshop discussions. We therefore ask that issues and points made at our workshops are included in your written submissions. This will help us to consider these issues alongside other submissions and allow for cross-submissions.

Our early work and section 9A study

- 4.34 Section 178(3) of the amended Act will allow us to take into account work done on the input methodologies before the amendments to the Act commenced.
- 4.35 We intend to use the work done, and information gathered, through our recent s 9A study into fibre services. The purpose of the study is to improve our understanding of the nature of fibre networks and operations in New Zealand.⁶²
- 4.36 We also anticipate using other previous work when developing the input methodologies, including work done for purposes of Part 4 regulation (under the Commerce Act) and regulatory work under the Act. For example, cost of capital is an area with cross-sector relevance, where we expect to refer to substantial work already undertaken in Part 4 and our previous work in telecommunications, including the Unbundled Copper Local Loop (**UCLL**) and Unbundled Bitstream Access (**UBA**) Final Pricing Principles (**FPP**).⁶³
- 4.37 When we do this, we will clearly identify where we are relying on previous work and will make the relevant material available to stakeholders.

Expert panel for advice on technical matters

- 4.38 We have set up an expert advisory panel to provide us with advice on complex issues that arise throughout the fibre input methodology process.
- 4.39 The panel is comprised of a number of established regulatory experts with strong reputations in their relevant fields. **Attachment D** provides a brief overview of the panel members.

⁶² We anticipate publishing a report on the s 9A study in late 2018.

⁶³ See paras 7.89 to 7.100 for further discussion on using the Part4 and FPP approach as a starting point for determining the cost of capital input methodologies for fibre.

- 4.40 Members of the panel may be used in a number of ways. We may ask members of the panel to provide us with expert advice on a specific issue. Alternatively, we may use the panel to review our own position, or provide advice on stakeholder submissions.
- 4.41 The expert advisory panel is not fixed, and we may appoint or remove members over time.
- 4.42 We may also seek additional expert advice or consultancy input on specific topics (such as quality dimensions and cost of capital), from advisors outside the panel.⁶⁴

- Q1 What changes to our process (if any) would you suggest to enhance the opportunity for you, and other stakeholders, to provide input and views to us as we develop the fibre input methodologies?
- Q2 What input methodologies (if any) could be progressed to draft or final decisions earlier to provide more certainty to stakeholders on the new fibre regulatory regime?

⁶⁴ We have contracted with Cambridge Economic Policy Associates (CEPA) to provide us with economic support as we develop the fibre input methodologies.

5. Interpreting the new regulatory framework

- 5.1 This chapter explains our view of the regulatory framework that we will need to apply when determining the input methodologies for suppliers of FFLAS. In explaining that framework, we:
- 5.1.1 set out our preliminary interpretation of the statutory purposes in Part 6 which we must apply when making our decisions, including how ss 162 and 166 interact and our preliminary view on how s 173 should apply when we set the fibre input methodologies; and
 - 5.1.2 provide an introductory overview of the regulation we must implement under Part 6 of the amended Act: input methodologies (subpart 3), information disclosure regulation (subpart 4) and price-quality regulation (subpart 5), and discuss the relationship between these forms of regulation.

The relevant statutory context and purposes of Part 6

- 5.2 This section:
- 5.2.1 introduces Part 6 of the amended Act and describes the relevance of Part 4 of the Commerce Act 1986;
 - 5.2.2 describes the purpose of the new regime, as reflected in s 162, and the factors that we are required to take into account when we implement the new regime under s 166; and
 - 5.2.3 describes our preliminary views on the relationship between ss 162 and 166.
- 5.3 We must develop and implement the new regulation consistently with the relevant purposes stated in the Act.

Introduction to Part 6 of the amended Act

Parliament has created a utility regulation framework for FFLAS

- 5.4 The Bill proposing amendments to the Act was introduced in response to a statutory review of telecommunications regulation under s 157AA. The review concluded that there was a need for change given the evolution of the telecommunications environment, the growth in fibre networks and services, and changes in the structure of the industry.

- 5.5 The objectives as set out in the Bill were to adopt a new approach to telecommunications regulation to ensure that:⁶⁵
- 5.5.1 excessive profits arising from natural monopoly services are limited;
 - 5.5.2 regulation is stable and predictable;
 - 5.5.3 regulation is only applied to the extent necessary to address lack of competition;
 - 5.5.4 regulation can respond rapidly to a changing environment; and
 - 5.5.5 market participants are responsive to consumer demands for service quality.⁶⁶
- 5.6 As part of the overall package of reforms, Part 6 introduces a new regime for the regulation of FFLAS, with the aim of establishing ‘a stable and predictable regulatory framework for fibre fixed line access services in New Zealand.’⁶⁷
- 5.7 The explanatory note to the Bill records that the new framework for regulating FFLAS is based on utility regulation in Part 4, and includes two types of regulation: price-quality regulation and information disclosure regulation.⁶⁸ These forms of regulation are supported by input methodologies that we are required to develop.

The relevance of Part 4 of the Commerce Act to Part 6

- 5.8 The meaning of a statute must be ascertained from its text and in light of its purpose.⁶⁹ In implementing the new regulation, we must give effect to the language used by Parliament.
- 5.9 We note that Parliament made a deliberate decision to base the regulatory model in Part 6 on the existing model in Part 4. A number of the key provisions in Part 6, including the purpose statement in s 162, are based on corresponding sections of Part 4.
- 5.10 We must always take into account the specific characteristics of the telecommunications market and respect the particular structure and language of Part 6. Nevertheless, to understand our role in developing and implementing our

⁶⁵ Telecommunications (New Regulatory Framework) Bill 2017 (293–1) (explanatory note) at 2.

⁶⁶ In the context of the Bill 'market participants' means suppliers of telecommunications services at both the wholesale and retail level.

⁶⁷ Telecommunications (New Regulatory Framework) Bill 2017 (293–1) (explanatory note) at 1.

⁶⁸ Telecommunications (New Regulatory Framework) Bill 2017 (293–1) (explanatory note) at 2.

⁶⁹ Interpretation Act 1999, s 5; *Commerce Commission v Fonterra Co-operative Group Ltd* [2007] NZSC 36, [2007] 3 NZLR 767.

new fibre regulation regime, in addition to our experience of telecommunications regulation, we are able to draw on our experience of regulation under Part 4. The High Court's detailed examination of input methodologies for electricity distribution and transmission, gas pipelines and airports in the merits appeal of the Commission's December 2010 Part 4 input methodologies (IM merits appeal) also assists us to understand the purposes, functions and operation of the regulatory tools in the Act.⁷⁰ This is because Parliament has made a conscious decision to base the regulatory tools in Part 6 on the existing regulation in Part 4.

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

- 5.11.1 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.
- 5.11.2 Accordingly, both Part 6 and Part 4 are designed to use regulation to promote outcomes that are consistent with those characteristic of competitive markets. This is reflected in the purpose statements in s 162 of the amended Act and s 52A of the Commerce Act.
- 5.11.3 To give effect to this purpose, Parliament has introduced two key tools into Part 6: information disclosure regulation and price-quality regulation. These are also two of the key regulatory tools used in Part 4 (although information disclosure regulation relating to fibre is already used in a different form under the current Act as discussed in paragraphs 2.41 to 2.51). Both regulatory tools are supported by input methodologies, which are a set of regulatory rules and processes that provide a framework for the development of the regulatory regime.
- 5.11.4 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 price-quality paths and information disclosure 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 below, we have considered this question independently and our preliminary view is that a building blocks approach is appropriate in Part 6 as well.

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

⁷⁰ *Wellington International Airport Ltd v Commerce Commission* [2013] NZHC 3289.

5.12.1 Part 4 is focused on the long-term benefit of ‘consumers’, which means persons who consume or acquire regulated services.⁷¹ Part 6, on the other hand, is concerned with the interests of the ‘end-user’—the person who ultimately receives the relevant service (or services that are dependent on the provision of that service).⁷²

5.12.2 Section 166(2) of the amended Act will provide that when we make a recommendation, determination or decision we must give effect to the purpose in s 162:

“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 of the Act,⁷³ and it means that, unlike Part 4, we are directed to consider the direct promotion of competition in some circumstances.

5.12.3 Part 6 also contains specific statutory requirements we must comply with in implementing the regulatory regime. For example, when setting the input methodologies, we have to act within the parameters of s 176 which contains rules relating to determining the initial value of fibre assets.

5.12.4 The Part 6 framework includes anchor products, which are wholesale services with price caps based on existing prices and are intended to ensure that voice and basic broadband services are provided at reasonable prices and to specific quality standards. The framework also provides for layer 1 services (DFAS and the unbundled fibre services) to be supplied.

5.12.5 Part 6 also recognises that the scope of regulation may change as the competitive environment evolves. In particular, subpart 7 provides for reviews to be conducted of various aspects of the regulatory framework, including whether services should be deregulated (s 208).

5.13 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 amended Act, and cannot simply import the approach we have adopted under Part 4.

⁷¹ Commerce Act 1986, s 52C.

⁷² Section 5.

⁷³ 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 in Chapter 6.

- 5.14 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 will guide our decision making for regulating FFLAS

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

- 5.15 We must develop and implement the new regulatory regime consistently with the relevant purposes in the amended Act. The amended Act contains a number of purpose statements that we are required to apply when exercising our functions under the Act:
- 5.15.1 The overall purpose of the Act, in s 3, is to 'regulate the supply of telecommunication services'.
 - 5.15.2 The purpose of Part 6 is expressed in s 162, which is focused on promoting the long-term benefit of end-users in markets for FFLAS by promoting outcomes consistent with those produced in workably competitive markets.
 - 5.15.3 We are required by s 166(2), when making recommendations, determinations or decisions, to give effect to 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.
 - 5.15.4 Finally, Part 6 includes dedicated purpose statements for input methodologies (s 173), information disclosure regulation (s 185) and price-quality regulation (s 191).
- 5.16 Of these, ss 162 and 166 will generally be of most relevance in implementing the new regulation for FFLAS. We set out below the text of these sections; we then discuss their meaning and relationship in more detail. We also discuss s 173 (which provides that the purpose of input methodologies is to promote certainty in relation to the rules, requirements and processes applying to regulation) in paragraphs 5.59 to 5.68 below.

Sections 162 and 166

- 5.17 Section 166 specifies the matters that the Commission is required to take into account when it exercises its functions under the Act:

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.

5.18 This section will govern the Commission’s decision-making process when, for example, it makes determinations that set the input methodologies, information disclosure regulation, and price-quality regulation.

5.19 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.

5.20 Apart from the replacement of ‘consumers’ with ‘end-users’, this purpose statement is materially the same as s 52A of the Commerce Act.⁷⁴

Sections 162 and 166(2)(b) require us to promote outcomes consistent with those produced in workably competitive markets

5.21 In developing the new regulatory framework, Parliament recognised that FFLAS would be supplied, in many cases, in a market where there is little or no competition and little likelihood of an increase in competition.

5.22 Section 162 is adapted from the purpose statement in s 52A of the Commerce Act. These purpose statements direct us to promote outcomes consistent with

⁷⁴ 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 para (c).

those produced in workably competitive markets rather than trying to promote competition directly.

- 5.23 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:⁷⁵
- 5.23.1 The purpose statement is concerned with the promotion of outcomes that are consistent with those in workably competitive markets. This recognises that perfect competition does not exist.
 - 5.23.2 Workable competition is encapsulated by the concept of economic efficiency, which includes technical (productive) efficiency, allocative efficiency and dynamic efficiency. Efficiency is the condition in which prices reflect efficient costs, including the cost of capital and thus a reasonable level of profit.
 - 5.23.3 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 suppliers of regulated services will have incentives to innovate and invest consistent with how such incentives apply to suppliers in workably competitive markets.
 - 5.23.4 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 that s 162 requires the Commission to promote.
- 5.24 We will be guided by these considerations in giving effect to the purpose statement in s 162 of the amended Act. We will also recognise the unique competitive landscape of telecommunications and differences between Part 4 of the Commerce Act and Part 6. This includes Parliament's directive that we should consider the promotion of competition directly in certain circumstances, as discussed below.
- 5.25 Consistent with the High Court's approach to s 52A(1)(a)-(d) of the Commerce Act, we see Parliament as having identified the outcomes in s 162(a)-(d) of the amended Act as being integral to promoting the long-term benefit of FFLAS end-users, and reflecting key areas of supplier performance that characterise workable

⁷⁵ *Wellington International Airport Ltd*, above n 70, at paras 6-29.

competition. As the High Court put it, the overall purpose—of promoting the long-term benefit of end-users—is achieved by the promotion of outcomes in the market that are consistent with outcomes in workably competitive markets, such that the paragraph (a)-(d) outcomes are achieved.⁷⁶

- 5.26 None of the outcomes are paramount and they are not separate and distinct from each other, or from s 162 as a whole. Rather, they are incentives and constraints on suppliers of FFLAS that flow from our promotion of outcomes consistent with those produced in workably competitive markets. In seeking to promote the long-term benefit of end-users of FFLAS we will exercise our judgement to balance these outcomes.⁷⁷

Section 162 requires us to promote the long-term benefit of end-users

- 5.27 Section 162 directs us to promote the long-term benefit of FFLAS ‘end-users.’ Section 5 defines ‘end-user’ in relation to a telecommunications service (in this case FFLAS) as ‘a person who is the ultimate recipient of that service or of another service whose provision is dependent on that service.’
- 5.28 Section 162 is concerned with the regulation of FFLAS. The ‘end-users’ referred to in that section would therefore include any consumers in downstream retail markets who receive FFLAS and services which depend on FFLAS as an input. Since FFLAS is a wholesale service, end-users will not purchase FFLAS from Chorus or the other LFCs directly. It follows that the second part of the definition of an end-user is most relevant, and will capture consumers of retail fibre fixed line broadband services and often FWA.⁷⁸
- 5.29 We note that this is a change from s 52A of the Commerce Act. Section 52A refers to promoting the long-term benefit of ‘consumers’, which is defined to include intermediate acquirers. So, for example, an entity that acquires FFLAS for the purpose of supplying a retail service to retail customers (such as RSPs) is not the focus of s 162 even though it would have been included under the wording of s 52A.
- 5.30 When we make our decisions to promote the outcomes listed in s 162 we must focus on the long-term benefits of FFLAS end-users in the retail markets, rather than acquirers of FFLAS in the wholesale markets or end-users who purchase services that do not use FFLAS as an input.

⁷⁶ See *Wellington International Airport*, above n 70, at para 222. The High Court referred to ‘consumers’ rather than ‘end-users’ because s 52A refers to ‘consumers’ rather than ‘end-users’.

⁷⁷ See *Wellington International Airport*, above n 70, at para 684.

⁷⁸ Consumers of fixed wireless access are often also FFLAS end-users because FWA services frequently use DFAS (which is a FFLAS) as an input.

Section 166(2)(b) also requires us to make decisions that directly promote competition, to the extent we consider it relevant

- 5.31 Section 166(2)(b) provides that, to the extent that we consider it relevant, we must also make decisions which best promote "workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services." This stands alongside our obligation to give effect to the s 162 purpose statement.
- 5.32 Section 166(2)(b) recognises that the telecommunications industry is characterised by constant development and the rapid uptake of new and evolving technologies which have the potential to result in an increase in competition, including in relation to FFLAS in certain respects.⁷⁹ We note that there is no equivalent provision in Part 4 of the Commerce Act.
- 5.33 For example, wireless services may be a substitute, or may become a closer substitute, for FFLAS in certain market segments eg, for end-users with relatively low bandwidth requirements.⁸⁰ Similarly, other access technologies which are substitutes for FFLAS may become available in the future. Even in the existing environment, there is potential for competition between Chorus and the other LFCs where Chorus continues to supply copper-based services, and between Vodafone's HFC network and Chorus' and Enable's UFB networks in Wellington and Christchurch respectively.
- 5.34 There is also potential for access-based competition. Access-based competition is where a competitor purchases a wholesale input from a network operator, and uses that input to supply downstream products and services. Fibre service providers are required to offer a suite of access products by the deeds discussed in paragraphs 2.24 and 2.25. The relative prices for wholesale services will affect RSPs' decisions on how to deliver retail services to end-users. For example, an RSP has the choice between purchasing layer 2 bitstream services and investing in unbundled fibre services.
- 5.35 Our decisions under Part 6 relating to the regulation of FFLAS may enhance or impede or have a mixed impact on competition in the wholesale markets where FFLAS are supplied and in one or more of the downstream retail markets involving telecommunications services that may or may not use FFLAS as an input.
- 5.36 Section 166(2)(b) accordingly expressly directs the Commission to make decisions that promote workable competition where relevant, rather than merely decisions

⁷⁹ Section 166(2)(b) 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 and give the Commission the flexibility to respond to technological change.

⁸⁰ Where FWA is provided using DFAS s 162 remains relevant.

which promote outcomes consistent with those produced in workably competitive markets. In promoting competition, it requires the Commission to take into account the interests of end-users in telecommunications markets generally, rather than confining itself to the interests of FFLAS end-users.⁸¹

- 5.37 Given the dynamic nature of these 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 focusing on promoting the outcomes listed in s 162 for the long-term benefit of FFLAS end-users.

Our preliminary views on how sections 162 and 166 interact

- 5.38 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 further consideration in s 166(2)(b) when we make determinations that set the input methodologies (subpart 3), information disclosure regulation (subpart 4) and price-quality regulation (subpart 5).
- 5.39 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:
- 5.39.1 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.
- 5.39.2 Section 166(2)(a) directs us to make decisions that promote the purpose in s 162. This is a mandatory consideration.
- 5.39.3 We are also required to make decisions that promote 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.

⁸¹ Section 166(2)(b) 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 and give the Commission the flexibility to respond to technological change.

- 5.39.4 Section 166 does not establish a hierarchy between the promotion of the two outcomes in s 166. 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 the promotion of competition in telecommunications markets for the benefit of end-users in those markets under s 166(2)(b).
- 5.40 We will 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.
- 5.41 However, we note that both s 162 and s 166(2)(b) are concerned with the outcomes produced by workable competition for the long-term benefit of end-users. The two provisions therefore contain complementary rather than competing objectives.⁸²
- 5.42 As discussed in Chapter 6, 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.⁸³
- 5.43 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 information disclosure 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).
- 5.44 We expect in practice the s 166 objectives will generally be met for most of our decisions if they promote the s 162 outcomes. However, we recognise that it is possible there may be situations where the best blend of the objectives in s 166

⁸² However, we recognise that s 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.

⁸³ These are the outcomes in s 162(d) and (c).

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.

- 5.45 **Issue 2 in Chapter 7** discusses an example of how we might apply s 166(2)(b) when setting the input methodologies.

Overview of types of regulation under Part 6

Introduction

- 5.46 The amended Act will establish two forms of regulation required under s 170, both of which are well established under Part 4 of the Commerce Act: price-quality regulation and information disclosure regulation.
- 5.47 This section provides an overview of these forms of regulation, together with the input methodologies required by s 175. It also discusses our preliminary views on how s 173 should be applied when we set the fibre input methodologies.
- 5.48 The input methodologies precede and underpin the price-quality and information disclosure regulation required under s 170. They therefore do not take direct effect at the time they are determined but flow through into our processes to develop the price-quality and information disclosure regulation.
- 5.49 As mentioned in **Chapter 1**, we will only know who will be regulated, which networks will be covered and what form of regulation will be imposed when the Minister issues regulations under s 222. However, we anticipate, and have assumed for the purpose of the following discussion, that Chorus will be subject to price-quality and information disclosure regulation and the other LFCs will be subject to information disclosure regulation only.

Input methodologies

Overview of input methodologies

- 5.50 Information disclosure and price-quality regulation are underpinned by input methodologies that set out the rules and processes that govern our approach to this regulation.
- 5.51 The input methodologies establish the rules and processes governing the various 'inputs' into those regulatory tools. For example, input methodologies will set out rules about asset valuation, so that suppliers, access seekers and end-users understand how a regulated supplier's assets will be valued, and how that value will be rolled forward over time.
- 5.52 The purpose of input methodologies is described in s 173 of the Act (based on s 52R of the Commerce Act):

The purpose of input methodologies is 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 this Part.

- 5.53 A focus when setting the input methodologies is to increase certainty by maintaining regulations that are stable, provide suppliers with incentives to invest in long-lived infrastructure and deliver long-term benefits to end-users.
- 5.54 Both we and regulated suppliers are required to apply the input methodologies.⁸⁴ This increases the certainty and stability of the regime, and allows participants to plan accordingly.
- 5.55 Section 175 provides us with a broad discretion as to the content and structure of input methodologies. In exercising our discretion, we will have regard to all relevant considerations, including the purpose of input methodologies as set out in s 173, the purpose of information disclosure regulation and price-quality regulation (as applicable), and the purposes in ss 162 and 166.
- 5.56 Section 175(1) also provides that the input methodologies must include certain matters "to the extent applicable to the type of regulation under consideration." As under Part 4, these matters include: cost of capital, asset valuation, allocation of common costs and treatment of taxation. The input methodologies must also cover quality dimensions,⁸⁵ regulatory processes and rules, and methodologies for the assessment of capital expenditure. We anticipate that we will publish separate input methodologies for each of these topics.
- 5.57 We also have the ability to make additional input methodologies to those specified in s 175(1). These can be made at the same time as we make the input methodologies required by s 175(1), or at a later stage.⁸⁶
- 5.58 The input methodologies that apply to a regulated supplier (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 input methodologies apply in respect of one or more different regulatory tools: information disclosure regulation and price-quality regulation.

Our preliminary view on how section 173 should apply when we set the fibre input methodologies

- 5.59 Providing a stable and predictable regulatory framework is an important objective of the new regime. This was also a key reason for the introduction of Part 4 of the Commerce Act.⁸⁷

⁸⁴ Section 174.

⁸⁵ Under Part 4, there is no requirement to determine an input methodology for quality dimensions.

⁸⁶ Section 177(2).

- 5.60 Increased regulatory certainty should promote some of the objectives in s 162 of the Act, in particular incentivising efficient investment and/or investment at a lower cost. A more certain and predictable regulatory environment should allow regulated suppliers 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 consumers.
- 5.61 Input methodologies are a key tool for helping to achieve this objective. This is reflected in the purpose statement for input methodologies in s 173 which aims to promote certainty for market participants (see paragraph 5.52).
- 5.62 However, while increased certainty is an important objective of the regime, the regime does not aspire to absolute certainty.⁸⁸ 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 ‘bedded in’.⁸⁹
- 5.63 In *Commerce Commission v Vector Ltd* the Court of Appeal stated:⁹⁰

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.

- 5.64 Some uncertainty remains inevitable. As the same Court of Appeal observed, certainty is a relative rather than an absolute value:⁹¹

...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

⁸⁷ *Vector Ltd v Commerce Commission* [2012] NZSC 99, [2013] 2 NZLR 445 at para 63.

⁸⁸ *Wellington International Airport*, above n 70, at para 214.

⁸⁹ *Vector Ltd v Commerce Commission*, above n 87, at para 64.

⁹⁰ *Commerce Commission v Vector Limited* [2012] NZCA 220, at para 34.

⁹¹ *Commerce Commission v Vector Limited*, above n 94, at para 60.

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.

5.65 All of the above reasoning is also applicable to the application of section 173 when we set the fibre input methodologies.

5.66 While certainty is not the predominant consideration, it will inform our approach to setting the input methodologies consistent with the views of the High Court in the IM merits appeal:

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.⁹²

5.67 Section 175 also requires us to set specific rules for when a price-quality path may be reconsidered within a regulatory period.

5.68 In these ways, input methodologies constrain the scope of our discretion in our evaluative judgements in subsequent regulatory decisions, and thus enhance predictability.⁹³

5.69 By setting the rules, processes and requirements upfront (prior to being applied by suppliers or ourselves), we give effect to the purpose in s 173 of promoting certainty. However, as recognised in s 180, these rules, processes and requirements may change.⁹⁴ In deciding whether an amendment is necessary, we must give effect to the purposes described in s 166 and the objective of

⁹² In *Commerce Commission v Vector*, above n 91, at para 34, the Court of Appeal expressed similar sentiments: 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.

⁹³ *Vector Ltd v Commerce Commission*, above n 90, at para 64.

⁹⁴ Section 180 prescribes the rules that apply when the Commission proposes to amend an input methodology.

promoting certainty in s 173 does not prevent us from amending the input methodologies where this is necessary to promote those purposes.

Overview of information disclosure regulation

- 5.70 Information disclosure 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.⁹⁵ It is governed by subpart 4 of Part 6, and the purpose is described in s 185 (based on s 53A of the Commerce Act).⁹⁶

185 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.⁹⁷

- 5.71 We will publish information disclosure requirements in a determination made under s 170 of the Act. Fibre service providers will then be required to:
- 5.71.1 publicly disclose information in accordance with those requirements;
 - 5.71.2 supply a copy of all of the information in question to us; and
 - 5.71.3 supply to us any further statements, reports, agreements, particulars or other information that we require for the purpose of monitoring compliance with our regime.⁹⁸
- 5.72 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 fibre service providers. This will include an analysis of how effectively information disclosure requirements are achieving the purpose of the Part.⁹⁹ Sections 187-190 of the amended Act contains the provisions relating to information disclosure regulation, including the requirements we must (or may) prescribe.

⁹⁵ 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.

⁹⁶ Chorus and other LFCs are already subject to information disclosure under s 156AU of the Act. The purpose of this information disclosure is different to that which will be imposed under the new s 170 of the Act. This information is not publically disclosed and is focussed on promoting competition in telecommunications markets generally by ensuring that Chorus and 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 the Commission's statutory processes and determinations.

⁹⁷ The purpose of Part 6 is set out in s 162.

⁹⁸ Section 186(1).

⁹⁹ Section 186(2)-(3).

- 5.73 Information disclosure is a less intrusive form of regulation than price-quality regulation. Instead of regulating the price and quality of a provider's services directly, information disclosure provides a means of monitoring the firm's performance, so as to promote the purpose in s 162.
- 5.74 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 the Commission also influences suppliers' performance to become more consistent with the outcomes in s 162 over time. This 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 (for the other LFCs) is part of the information disclosure toolbox.
- 5.75 We will commence consultation in detail on our development of information disclosure regulation under s 170 of the Act once the formulation of the input methodologies is more advanced.

Overview of price-quality regulation

- 5.76 From the implementation date, Chorus will also be subject to price-quality regulation. The purpose of price-quality regulation is to 'regulate the price and quality of fibre fixed line access services provided by regulated fibre service providers.'¹⁰⁰
- 5.77 The price-quality 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.¹⁰¹
- 5.78 The BBM approach, described in paragraphs 3.15 to 3.17, is based on the notion that workably competitive markets produce prices or revenues that are based on costs. Where the revenue cap is based on the efficient costs of supplying the service, this allows the supplier the opportunity to recover its efficiently-incurred costs and earn at least a normal rate of return on its investments.¹⁰² This, in turn, will promote the incentives identified in s 162(a) and limit the supplier's ability to extract excessive profits, referred to in s 162(d).
- 5.79 Price-quality regulation is also designed to provide an incentive for suppliers to increase efficiency through allowing increased profitability where a supplier

¹⁰⁰ Section 191.

¹⁰¹ Section 193(3).

¹⁰² *Wellington International Airport*, above n 70, at paras 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.

improves efficiency. When setting price-quality paths, we set expenditure allowances for a regulatory period which form a benchmark suppliers can outperform. In other words, we cap the prices or revenues that suppliers can recover from customers, which provides suppliers with incentives to be cost efficient, as a supplier who improves its efficiency can expect to make profitability gains.

- 5.80 A proportion of these efficiency gains can flow through to lower revenues or prices when we reset the price-quality path for the next regulatory period. These efficiency gains are available to be passed on to end-users, to the extent that RSPs pass through the wholesale price reductions to retail prices.¹⁰³ This promotes the outcomes referred to in ss 162(b) and (c).
- 5.81 Quality standards also have an important role in ensuring that regulated services are appropriate to meet end-users' demands. 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) of the Act.
- 5.82 We will also consider whether a wider range of quality measures may be appropriate in the context of Part 6 than we currently apply in price-quality paths under Part 4 of the Commerce Act. We will also need to consider the relationship between quality standards in price-quality paths and the input methodology we are required to determine for 'quality dimensions'. We discuss this issue at Issue 9 in Chapter 7.
- 5.83 We will commence consultation on our development of a price-quality path for Chorus once the formulation of the input methodologies is more advanced.

We propose to apply a building blocks approach when implementing fibre regulation

- 5.84 The framing of the legislation, together with the background material (including the Minister's review under s 157AA), demonstrates that Parliament contemplated that we would adopt BBM under Part 6.¹⁰⁴ However, we recognise that this is not explicitly prescribed in Part 6.

¹⁰³ 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).

¹⁰⁴ The BBM approach is summarised in paras 3.15 to 3.19.

- 5.85 All our decisions, including as to the form of regulation, must be chosen to best give or be likely to best give effect to the objectives set out in s 162 and the promotion of competition in telecommunications markets where relevant.
- 5.86 Our preliminary view is that a BBM approach with a rolled-over RAB, similar to that adopted for regulation under Part 4, would best give or be likely to best give effect to the objectives set out in s 166. When applied to price-quality regulation, the approach provides a regulated supplier with an expectation of recovering its efficient costs over time, promoting innovation and investment in their services. For information disclosure regulation, a BBM approach enables interested persons to assess the extent to which regulated suppliers' profitability levels are consistent with outcomes produced in a workably competitive markets. These matters are discussed further as part of the key economic principles set out in **Chapter 6**.
- 5.87 We expect that some changes from the Part 4 approach will be required, given the differences in the services and markets concerned (including the supply and demand characteristics).
- 5.88 We acknowledge that the requirement in s 166(2)(b) to promote workable competition where relevant distinguishes the new regime from Part 4. Our preliminary view is that the adoption of the BBM approach remains appropriate for our new fibre regulation regime having considered these requirements.

- Q3 What are your views on our proposed interpretation of 'end-users of telecommunications services' in s 162 and s 166(2)(b)?
- Q4 What are your views on our preliminary views on how s 162 and s 166(2)(b) interact?
- Q5 What are your views on our preliminary view on how s 173 applies when we set the input methodologies?
- Q6 What are your views on our preliminary view that a BBM approach similar to that adopted under Part 4 would best give or be likely to best give effect to the objectives in s 166?

6. Economic concepts and principles relevant to our new regime

- 6.1 The statutory purposes in Part 6 adopt, and are informed by, an understanding of underlying economic concepts and principles. This chapter:
- 6.1.1 introduces the economic concepts of workable competition and economic efficiency; and
 - 6.1.2 describes key economic principles that may provide useful guidance in giving effect to the statutory purposes in Part 6, based on our experience regulating under Part 4 of the Commerce Act.
- 6.2 This chapter focuses on principles that could help us give effect to the statutory purposes, rather than simply repeating objectives that are already specified in s 162(a)-(d).

Workably competitive markets and economic efficiency

- 6.3 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.¹⁰⁵
- 6.4 This section discusses:
- 6.4.1 implications of workably competitive markets; and
 - 6.4.2 the three dimensions of economic efficiency – allocative, productive and dynamic efficiency.

Workably competitive markets

- 6.5 We previously considered the implications of workably competitive markets in our 2010 reasons papers for the input methodologies under Part 4. Our key findings are summarised below.¹⁰⁶
- 6.5.1 The OECD describes workable competition as '*...a notion which arises from the observation that since perfect competition does not exist, theories based*

¹⁰⁵ See paras 5.2 to 5.45 for further discussion on ss 162 and 166(2)(b).

¹⁰⁶ "Input methodologies: Reasons paper", above n 49, at paras 2.5.1 to 2.5.10.

on [perfect competition] do not provide reliable guides for competition policy.¹⁰⁷

- 6.5.2 In contrast to the theoretical model of perfectly competitive markets, in which market participants are simply passive ‘price takers’, suppliers in workably competitive markets actively seek out and find opportunities for profitable investment and innovation.
- 6.5.3 Workable competition is therefore a *dynamic* process of rivalry between competing suppliers through which knowledge is both generated and discovered, with market prices being one of the primary ways that information is disseminated to market participants.
- 6.5.4 Unlike ‘perfect’ models of competition—in which very specific ‘equilibrium’ outcomes arise as a result of a number of strict and unrealistic underlying assumptions—‘workable’ competition encompasses a wide range of outcomes. As a consequence, workably competitive market outcomes are harder to define with precision.
- 6.5.5 A number of attempts have been made to define criteria for workably competitive markets in the academic literature. Key performance criteria typically involve:
 - 6.5.5.1 efficient production and distribution;
 - 6.5.5.2 profits at levels just sufficient to reward investment, efficiency, and innovation;
 - 6.5.5.3 prices that encourage rational choice, guide markets toward equilibrium, and do not intensify cyclical instability;
 - 6.5.5.4 output levels and product quality (that is, variety, durability, safety, reliability, and so forth) that are responsive to consumer demands;
 - 6.5.5.5 success accruing to sellers who best serve consumers' wants; and
 - 6.5.5.6 appropriate exploitation of improved products and techniques.
- 6.5.6 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.

¹⁰⁷ Organisation for Economic Co-operation and Development "Glossary of Industrial Economics and Competition Law" (16 July 1993) <http://www.oecd.org/dataoecd/8/61/2376087.pdf> at page 85.

- 6.6 Professor George Yarrow highlighted the importance of innovation resulting from workable competition. He stated:¹⁰⁸

In my view, the greatest benefits of competitive markets are in terms of dynamic efficiency – the discovery and use of new information that leads to the development of new products and services, and to new, more efficient techniques of production.

- 6.7 In the judgment in the IM merits appeals, the High Court emphasised the following points regarding workable competition.¹⁰⁹

6.7.1 A workably competitive market is one that provides outcomes that are reasonably close to those found in strongly competitive markets. Such outcomes are summarised in economic terminology by the term 'economic efficiency' with its familiar components: technical (or productive) efficiency, allocative efficiency and dynamic efficiency.

6.7.2 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. It is envisaged that suppliers of regulated services will have incentives to innovate and invest consistent with the manner in which suppliers in workably competitive markets have such incentives.¹¹⁰

The three dimensions of economic efficiency

- 6.8 Workably competitive markets can typically be expected to promote outcomes consistent with 'economic efficiency.' In particular, competitive pressures would be expected to move market participants closer towards efficient outcomes that are beneficial to consumers over time.

- 6.9 The three dimensions of economic efficiency are:¹¹¹

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

¹⁰⁸ George Yarrow, Martin Cave, Michael Pollit and John Small "Review of Submissions on Asset Valuation in Workably Competitive Markets: A Report to the New Zealand Commerce Commission" (November 2010) Annex 2: George Yarrow – Response to Submissions on Individual Expert Reviews at para 2.18.

¹⁰⁹ *Wellington International Airport Ltd and others v Commerce Commission* [2013] NZHC 3289 (11 December 2013), para 22.

¹¹⁰ These incentives faced by regulated suppliers can arise from different sources, including: natural incentives occurring under revenue-cap regulation, incentives resulting from applying minimum quality standards (and associated penalties), and incentives resulting from competitive alternative technologies/suppliers.

¹¹¹ "Input methodologies: Reasons paper", above n 49, at para 2.5.8.

- 6.9.2 **Productive efficiency** is present when producers use inputs in such a manner as to minimise costs, subject to technological constraints.
- 6.9.3 **Dynamic efficiency** refers to decisions made over time and includes decisions relating to investment and/or innovation that can improve productivity as well as the range and quality of services.
- 6.10 Economic efficiency can generally be expected to be enhanced in markets that are competitive.¹¹² Firms that are subject to competitive pressures have an incentive to meet the demands of their customers (allocative efficiency), and at minimum cost (productive efficiency), as they would otherwise lose market share to more responsive and efficient competitors. Such firms also have an incentive to invest and innovate over time, and to achieve and maintain a competitive advantage over their rivals (dynamic efficiency).
- 6.11 FFLAS are regulated under Part 6 as, for the most part, they 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 suppliers to become more efficient over time.

Key economic principles

- 6.12 This section:
- 6.12.1 describes the role of key economic principles for the fibre input methodologies;
 - 6.12.2 provides an overview of the three key economic principles we applied when reviewing the input methodologies under Part 4;
 - 6.12.3 discusses potential differences in economic principles between the Part 4 input methodologies and fibre input methodologies; and
 - 6.12.4 invites stakeholders' comments on relevant economic principles for the fibre input methodologies.

Role of key economic principles for the fibre input methodologies

- 6.13 We have considered the key economic principles which may be most relevant and provide useful guidance when we make decisions on the fibre input methodologies. These principles are not intended as a 'regulatory compact'—that

¹¹² We note that this may not be the case where there is market failure.

is, they will not form an (implicit) agreement between us as the regulator and regulated suppliers.¹¹³

- 6.14 The economic principles are not an outcome we seek to give effect to in and of itself. Rather, they are a means to an end—being the promotion of the long-term benefit of end-users under s 162 or s 166(2)(b). In other words, the economic principles are subordinate to, but consistent with, the purpose statement. We will only apply them in so far as they assist us to give effect to s 162 or s 166(2)(b).
- 6.15 Although we expect our economic principles to guide our approach, in practice:
- 6.15.1 some of the principles may be of limited relevance in certain circumstances—in other words, not every principle will be relevant to every decision we are required to make;
 - 6.15.2 there may be tensions between the principles—where there is conflict between principles, we will apply our judgement to make the decision that best gives effect to the statutory purposes; and
 - 6.15.3 the ‘first best’ solution from an economic perspective may not always be possible, due to other constraints or features within or outside our regulatory regime, for example, implementation or compliance costs.

Key economic principles applied in the Part 4 input methodologies review

- 6.16 When reviewing the input methodologies under Part 4, we considered three key economic principles were relevant to that regime.¹¹⁴
- 6.16.1 **Real financial capital maintenance (FCM):** a regulated supplier has the opportunity to earn profits that compensate for its cost of capital over time (taking into account its exposure to risk)—ie, to earn a 'normal return'. Allowing a regulated supplier the opportunity to earn normal returns over the lifetime of an investment provides it with a chance to maintain the financial capital it has invested.¹¹⁵ However, price-quality regulation does

¹¹³ Section 176(2A) explicitly notes that there is no guarantee that 'regulated fibre service providers should be protected from all risk of not fully recovering those past financial losses through prices over time.'

¹¹⁴ These are the three principles that we considered had broad application across the Part 4 regime. We noted that there are also economic principles that underpin particular input methodologies, which could be described as part of the policy intent of those particular input methodologies.

¹¹⁵ "Input methodologies: Reasons paper", above n 49, at paras 2.6.28 and 2.8.7.

not guarantee a normal return over the lifetime of a regulated supplier's assets.¹¹⁶

6.16.2 **Allocation of risk:** ideally, we allocate particular risks to suppliers or consumers depending on who is best placed to manage the risk, unless doing so would be inconsistent with the Part 4 purpose (s 52A).¹¹⁷

6.16.3 **Asymmetric consequences of over and under-investment:** we apply FCM recognising the asymmetric consequences to consumers of regulated energy services, over the long term, of under-investment versus over-investment.¹¹⁸

6.17 We expand on these principles below and how they might apply in the context of FFLAS.

Real financial capital maintenance principle

6.18 In applying this principle, we provide regulated suppliers with the *ex ante* expectation of earning a 'normal return'. This provides a regulated supplier the opportunity to maintain the financial capital it has invested. This concept implicitly underpins the building blocks model.

6.19 FCM assumes that capital should be maintained in real terms.¹¹⁹ 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 supplier's financial capital in real terms.

6.20 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

¹¹⁶ Commerce Commission "Setting the customised price-quality path for Orion New Zealand Limited" (29 November 2013), para 2.54.4, A28 and A35; "Input methodologies: Reasons paper", above n 49, at para 2.6.28.

¹¹⁷ "Input methodologies: Reasons paper", above n 49, at para 2.6.4.

¹¹⁸ Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper" (30 October 2014) para 2.39.

¹¹⁹ This is achieved by compensating the supplier for inflation, either by using a nominal rate of return (WACC) or by indexing the value of the regulatory asset base (RAB) for inflation.

result in practice, it is a useful concept in moving outcomes closer to, rather than further away from, normal returns over time.¹²⁰

- 6.21 The High Court supported the FCM principle in the IM merits appeal judgment. The Court observed that:¹²¹

[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.

- 6.22 Under price-quality regulation, the FCM principle is applied on an *ex ante* basis—regulated suppliers 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 supplier becomes less efficient, or faces other unexpected cost increases.
- 6.23 Importantly, price-quality regulation does not *guarantee* an *ex post* normal return over the lifetimes of a regulated supplier’s assets. The allocation of risks between suppliers and end-users will usually mean that, although suppliers might have expected to earn a normal return *ex ante*, such a return is not earned *ex post*. Rather, the actual returns earned by suppliers *ex post* may be either above or below a normal return.

Application of the financial capital maintenance principle in price-quality regulation

- 6.24 In practice, we expect to set the input methodologies to enable this principle to be applied at the beginning of each regulatory period by:
- 6.24.1 providing appropriate compensation to suppliers for the risks they are required to manage; and
 - 6.24.2 using estimates or forecasts of cost of capital, prudent expenditure and demand (where relevant), that are free of systematic bias.
- 6.25 As a result of applying the FCM principle, in combination with the revenue cap, roll-over of the RAB and resets for each regulatory control period:

¹²⁰ For example, a regulated supplier may over- or under-perform relative to the assumptions used in setting price or revenue paths for each regulatory control period.

¹²¹ *Wellington International Airport Ltd & Others v Commerce Commission* [2013] NZHC 3289, para 256.

- 6.25.1 suppliers will have the opportunity (but not a guarantee) to earn a normal return on their efficient investments, consistent with s 162(a) and (d);
- 6.25.2 suppliers will be rewarded for superior performance (and penalised for poor performance), consistent with s 162(b); and
- 6.25.3 efficiency gains can be shared with end-users when the price-quality path is reset—or via an incremental rolling incentive scheme (IRIS) mechanism, if one is applied—consistent with s 162(c).¹²²

Application of the FCM principle in information disclosure regulation

- 6.26 The FCM principle is also relevant when setting the input methodologies relating to information disclosure requirements.¹²³ In specifying the information to be reported, we enable interested persons to assess the extent to which regulated suppliers' profitability levels are consistent with normal returns and therefore the outcomes produced in a workably competitive markets.

Allocation of risk principle

- 6.27 Ideally, risks are allocated to suppliers 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.
- 6.28 Applying this principle in the context of FFLAS is expected to promote the s 162 outcomes in a manner similar to a workably competitive market. In particular, if suppliers are not compensated for risks that are outside their control, this may have a detrimental impact on investment incentives.
- 6.29 Appropriate allocation of risks helps avoid the problems associated with moral hazard.¹²⁴ It is important that regulated suppliers 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. Managing risks includes:
 - 6.29.1 actions to influence the probability of occurrence, where possible;
 - 6.29.2 actions to mitigate the costs of occurrence; and

¹²² IRIS is a mechanism by which suppliers can retain the benefits of efficiency gains beyond the end of a regulatory period. See Commerce Commission "Incentives for suppliers to control expenditure during a regulatory period: Process and issues Paper" (20 September 2013); Commerce Commission "Amendments to input methodologies for electricity distribution services and Transpower New Zealand: Incremental Rolling Incentive Scheme" (27 November 2014).

¹²³ 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.

¹²⁴ A moral hazard is a situation where a party will have a tendency to take risks because the costs that could result will not be borne by that party.

6.29.3 the ability to absorb the impact where it cannot be mitigated.

- 6.30 Regulated suppliers have various risk management tools at their disposal, including 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 fibre service providers.
- 6.31 We need to consider risk allocation to determine the regulatory settings necessary to give effect to the FCM principle. Once risks are allocated between suppliers and end-users, we then compensate suppliers and end-users accordingly through the price-quality path we set.¹²⁵
- 6.32 We have previously considered the allocation of (and compensation for) risks when implementing regulation under Part 4. Two specific examples in the Part 4 context include the risk of natural disasters (such as earthquakes) and the risk of economic stranding. These indicative examples are summarised in Figure 6.1 below.

Figure 6.1: Indicative examples of risk allocation

Natural disasters

Orion, the electricity distribution business (EDB) in central Canterbury, applied for a customised price-quality path (CPP) following the Canterbury earthquakes in 2010 and 2011.

The risk of natural disasters was shared between Orion and consumers in our decision on Orion's CPP. We decided that Orion will receive *ex post* compensation for additional net costs incurred in responding to catastrophic events, but receive no additional compensation for lower-than-forecast revenues.¹²⁶

We considered that providing *ex post* compensation for additional net costs would strengthen incentives to restore supply (benefitting consumers by enabling demand to be met). However, no additional compensation was provided for demand risk given that Orion was subject to a price cap (so bore this risk by default) and demand risk can be mitigated through investor diversification.¹²⁷

Economic stranding

In the Part 4 input methodologies review, we considered the risk of EDBs' networks being economically stranded due to increasing deployment of emerging technologies (such as distributed generation and

¹²⁵ Where end-users bear risks, they are, in effect, compensated through prices that are lower than they would have been had suppliers borne those risks.

¹²⁶ Commerce Commission "Setting the customised price-quality path for Orion New Zealand Limited" (29 November 2013) at Attachments B and C.

¹²⁷ For a diversified investor in Orion, the impact of the Canterbury earthquakes on demand would have had a relatively small effect on their portfolio return. Further, the practical effect of using the 75th percentile WACC (which applied at that time) was to provide a buffer for catastrophic events.

storage).¹²⁸ For example, if a customer installs solar panels and batteries at their premises, they may use the EDB's network less.

As a 'modest and partial' solution, we decided to allow EDBs to apply for a discretionary NPV-neutral shortening of their remaining asset lives (capped at 15 per cent).

- A more rapid time profile of capital recovery will reduce the amount of remaining capital to be recovered, if the risk of widespread disconnections eventuates. This mitigates the risk of potential future price shocks for consumers, which would likely be required to maintain the expectation of ex ante FCM if (and when) the downside risk of partial capital recovery becomes more likely.
- This measure was designed to ensure that total cost to consumers does not increase, in NPV terms, over the life of the assets. If suppliers exercise the asset life shortening option, prices to consumers would rise moderately in the short term and fall in the longer term, compared to the status quo.

We considered that EDBs should ultimately bear the risk of economic network stranding, given they are best placed, and have the strongest incentive, to manage this risk (for example, by setting prices which ensure uptake of solar panels is not inefficiently incentivised).¹²⁹

6.33 It is important that a regulatory regime designed to protect end-users does not end up being used to protect regulated suppliers from competition, or from the effects of competition. This is explicitly acknowledged in s 176(2A) of the amended Act, which notes there is no guarantee that 'regulated fibre service providers should be protected from all risk of not fully recovering financial losses through prices over time.'¹³⁰

Asymmetric consequences of over- and under-investment principle

6.34 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.

6.35 In practice, consideration of asymmetric consequences is likely to involve trading off the costs to consumers of higher prices against any expected benefits associated with reducing the risk of under-investment. Other regulatory tools,

¹²⁸ 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.

¹²⁹ Commerce Commission "Input methodologies review decisions – Topic paper 3: The future impact of emerging technologies in the energy sector" (20 December 2016) at Chapter 3.

¹³⁰ We acknowledged in the Part 4 input methodologies review that there may come a time when, due to the development of emerging technologies or other circumstances, the key economic principles no longer assist us in promoting the s 52A purpose and application of these principles is no longer sustainable. For example, we noted that there is a risk that if enough consumers disconnect from the network, the remaining consumers will not be willing or able to pay the prices that would be required for suppliers to achieve FCM, even if our price paths remains consistent with FCM. Commerce Commission "Input methodologies review decisions – Framework for the IM review" (20 December 2016) at para 152.

such as quality standards and associated penalties, are likely to be relevant when considering the potential risk of under- investment.

Applying this principle to regulated energy businesses

- 6.36 In some cases, the adverse consequences associated with under-investment by a supplier may be greater than the adverse consequences of increasing prices to mitigate this risk. For example, we use the 67th percentile WACC estimate when setting price-quality paths for regulated energy businesses, given the significant costs to consumers of major supply outages resulting from under-investment.
- 6.37 When deciding to use the 67th percentile WACC estimate for energy businesses, we noted that:¹³¹
- 6.37.1 the WACC applied under the cost of capital input methodologies is an estimate, because the actual cost of capital is not observable;
 - 6.37.2 although the mid-point (50th percentile) WACC is our best estimate, it could be higher or lower than the true cost of capital; and
 - 6.37.3 the main reason to set a WACC percentile above the mid-point is to mitigate against the risk of under-investment relating to service quality generally (and contributing to major supply outages in particular).
- 6.38 During consultation on our 2014 decision on the WACC percentile for energy businesses, Professor Ingo Vogelsang highlighted the need to consider the factors which lead to under-investment, and more targeted policies which could address these. Specifically, he stated:¹³²
- ...the often-claimed superiority of dynamic over static efficiency only holds if (a) investment is significantly below the dynamic optimum and (b) the regulator uses total surplus instead of consumer welfare as the relevant criterion. I therefore suggest exploring the market failures that lead to under-investment and the policies in place for dealing with these failures. My conjecture is that these policies are generally better targeted and are likely to yield better outcomes. In contrast, a policy of using the WACC percentile is going to be better if the other policies are not in place, not effective or are viewed as too interventionist. Examples, where the WACC policy might be more effective are w.r.t. innovations.
- 6.39 Professor Vogelsang also observed that if suppliers are already at or past the optimal level of investment, there is no benefit to consumers in incentivising increased investment.

¹³¹ "Amendment to the WACC percentile: Reasons paper", above n 126.

¹³² Ingo Vogelsang "Review of Oxera's report, input methodologies – Review of the '75th percentile' approach" (10 July 2014) at para 24.

Considering whether a material asymmetry exists for FFLAS

- 6.40 Although we consider the potential for asymmetric consequences of under-investment and over-investment is a relevant economic principle, it does not necessarily mean that an asymmetry exists for FFLAS.
- 6.41 Rather, in the event that we determine there is a material asymmetry, we consider this principle should influence our regulatory approach. This includes exploring the factors which lead to hidden under-investment, and the policies in place for dealing with these (in addition to, or instead of, a WACC uplift).¹³³ In the case of airports, we have also considered the ability of suppliers to earn significant amounts of revenue from unregulated complementary activities.¹³⁴
- 6.42 We have previously considered the asymmetric consequences of under-investment and over-investment for telecommunications services, in the context of the final pricing principle for the UCLL and UBA services. In that case we did not make an adjustment to our mid-point WACC estimate, noting that we considered the case for applying a WACC uplift was much weaker than for electricity lines and gas pipelines services.¹³⁵
- 6.43 This decision was influenced by the FPP decisions being based on a total service long-run incremental cost (**TSLRIC**) pricing principle, rather than a RAB-based building blocks approach.¹³⁶ However, we also considered other factors, such as the availability of substitutes (eg, mobile networks), which reduced the impact on consumers of outages on the copper network.

¹³³ For example, when reviewing the WACC percentile applied to regulated energy businesses, we found there are a number of factors which might influence investment in network quality. These include: required quality standards and associated penalties; revenue-linked quality incentive schemes; transmission grid reliability standards; information disclosure and summary and analysis; as well as the desire of Boards and management to ensure the lights do not go out (due to potential reputation issues). Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper" (30 October 2014), para 5.61.

¹³⁴ We stated that aeronautical investments are likely to take place even in instances when the regulated return is too low, if the difference can be made up from complementary unregulated revenue streams. Commerce Commission "Input methodologies review decisions – Topic paper 6: WACC percentile for airports" (20 December 2016) at para 139.

¹³⁵ Commerce Commission "Cost of capital for the UCLL and UBA pricing reviews: Final decision" (15 December 2015) at para 221.

¹³⁶ Under TSLRIC pricing, new investment undertaken by the supplier typically does not affect the regulated price-caps, suggesting that a WACC uplift would be less likely to materially affect incentives to invest. This differs from the situation under a utility-style building blocks approach, where new investment is typically rolled into the RAB.

Differences between Part 4 and fibre input methodologies

- 6.44 We consider it appropriate to use our approach to regulation under Part 4 as a starting point when developing key economic principles for the fibre input methodologies, particularly given that the s 162 purpose is modelled on s 52A of the Commerce Act.
- 6.45 However, it is also important to be conscious of differences between regulation of FFLAS and the sectors regulated under Part 4 (eg, electricity lines services). For example, some differences which may be relevant are listed below.
- 6.45.1 The potential for infrastructure-based competition to emerge from new technologies is generally greater in the telecommunications sector. For example, wireless services (both FWA and mobile) may be substitutes, or become more prevalent substitutes, for fibre services in certain market segments. Similarly, other access technologies which are substitutes for fibre services may become available in the future.
- 6.45.2 There is also greater potential for access-based competition.¹³⁷ As fibre service providers offer a suite of access products, the relative prices for wholesale services will affect RSPs' decisions on how to deliver retail services to end-users. For example, an RSP will have the choice between purchasing layer 2 bitstream services and investing in unbundled fibre services.¹³⁸ This potentially creates incentives for fibre service providers to protect their existing revenue streams by setting prices that encourage RSPs to purchase layer 2 services instead of unbundled fibre services.
- 6.45.3 The amended Act will give us sole responsibility for both revenue allowances and pricing methodologies. This is in contrast to electricity lines services, where another industry regulator (the Electricity Authority) has the power to set pricing methodologies.¹³⁹
- 6.46 These differences suggest that the relevance of the Part 4 economic principles in developing the fibre input methodologies may also differ. For example, the greater prospect of competition, relative to the sectors we regulate under Part 4, might mean that:
- 6.46.1 allocation of demand risk (and the associated risk of economic stranding of assets) is particularly important, leading to challenges in applying the FCM principle; and

¹³⁷ Access-based competition is where a competitor purchases a wholesale input from a network operator, and uses that input to supply downstream products and services.

¹³⁸ UFB providers are required to provide unbundling from January 2020. Layer 2 services and unbundled fibre services are discussed in more detail in Chapter 2 and Chapter 3.

¹³⁹ See s 52T(1)(b) of the Commerce Act.

- 6.46.2 other economic principles, such as pricing efficiency, are more important for FFLAS than other sectors we regulate.

Allocation of economic stranding risk and application of FCM may be particularly challenging

- 6.47 The allocation of demand risk, and the associated risk of economic stranding is likely to be particularly important in the context of FFLAS. This reflects the greater threat of competition relative to the sectors we regulate under Part 4.
- 6.48 For example, we may need to identify and remove relevant assets from the RAB if:
- 6.48.1 *ex ante* compensation is provided for asset stranding risk, and some assets are subsequently stranded; or
- 6.48.2 workable competition develops in certain areas, leading to de-regulation.
- 6.49 The appropriate allocation of, and compensation for, the risk of economic stranding is likely to be an important factor when considering whether suppliers have a reasonable *ex ante* expectation of a normal return (consistent with the FCM principle). Stranding is a downside risk, that may not have an equal and opposite upside risk.¹⁴⁰
- 6.50 Possible approaches to compensate for the risk of economic stranding include adding a margin to the rate of return, particularly to the extent stranding risk is systematic in nature, or where *ex ante* compensation through the allowed rate of return is considered appropriate.¹⁴¹ Reducing asset lives or using a front-loaded depreciation profile may also be relevant.

Pricing efficiency may be more relevant for fibre than other sectors we regulate

- 6.51 To protect their revenue streams, fibre service providers have incentives and may have the ability to limit the level of both infrastructure-based competition (eg, from fixed wireless providers) and access-based competition at deeper levels of the network (eg, fibre unbundling).¹⁴²

¹⁴⁰ The form of regulatory control may influence the upside risk. For example, price cap regulation offers greater upside because demand growth results in greater revenue. The upside under a revenue cap is lower.

¹⁴¹ In the UCLL FPP further draft determination, we considered the relationship between economic and engineering asset lives and the discount rate. In that specific context, we noted that a two per cent increment to the discount rate to account for the risk of asset stranding was equivalent to assuming that there was an 18 per cent chance that the network will be completely stranded in ten years. Commerce Commission “Further draft pricing review determination for Chorus’ unbundled copper local loop service” (2 July 2015) at paras 1361-1363.

¹⁴² Infrastructure-based competition is where an entrant constructs a network without the use of a fibre service provider’s network. For example, fibre service providers face infrastructure-based competition from Vodafone’s HFC network and mobile networks. Access-based competition is where a competitor

- 6.52 Ideally, prices should promote efficient investment from fibre service providers, RSPs, and alternative network operators, to the extent this promotes the long-term benefit of end-users. We would be concerned about pricing which clearly led to outcomes in favour of particular technologies or access services, where this is not in the long-term benefit of end-users.
- 6.53 There are several provisions in the amended Act that are likely to impact on pricing efficiency by Chorus, especially in the initial regulatory period(s).
- 6.53.1 Under s 194, a revenue cap (rather than a price cap) is required to be applied in the initial regulatory period.
- 6.53.2 Within the revenue cap, Chorus will also be required to supply certain services (anchor services, DFAS) at prices which will be rolled over from the existing contracts with the government. The contracts also require Chorus to offer an unbundled fibre service, but do not specify price terms. The extent to which prices for these services reflect underlying costs is unclear.
- 6.53.3 Chorus is also required to set geographically consistent prices under s 200, unless an exemption applies. Geographic consistency could result in distortionary pricing signals for potentially competitive technologies (such as fixed wireless).¹⁴³
- 6.54 The equivalence of inputs and non-discrimination obligations in the deeds between UFB providers and the Crown are also likely to be relevant, as the deeds continue to have effect after 1 January 2020 (see paragraph 2.25).
- 6.55 We have previously considered pricing efficiency in some detail in the context of regulation of gas pipeline businesses (**GPBs**) and airports.
- 6.55.1 For GPBs we adopt a principle-based approach to pricing methodologies, where several pricing principles are included in the input methodologies.¹⁴⁴ Under information disclosure, each GPB is required to disclose the pricing methodology it actually applies, and demonstrate the extent to which it is consistent with the pricing principles specified in the input

purchases a wholesale input from a fibre service provider, and uses that input to supply downstream products and services. Layer 2 bitstream access and potentially layer 1 unbundling are examples of access services provided on fibre networks.

¹⁴³ Specifically, geographically consistent prices, which will be higher than urban costs, will encourage the uptake of alternative technologies in urban areas more rapidly than if prices reflect local costs in those areas. This risks duplicating networks in urban areas and inefficiently under-utilising fibre assets. Conversely, geographically consistent prices, which are likely to be lower than rural costs, will tend to discourage competition from alternative technologies in rural areas.

¹⁴⁴ "Input methodologies: Reasons paper", above n 49, at pages 175-184.

methodologies.¹⁴⁵ However, GPBs are not required to apply the pricing principles in setting their prices, except in certain circumstances that relate to customised price-quality paths.¹⁴⁶

6.55.2 We have also assessed the efficiency of airports' prices under information disclosure, when reviewing pricing decisions from Auckland, Wellington and Christchurch Airports. We have used a principle-based approach, similar to that applied for GPBs.¹⁴⁷

6.56 Under s 206 we will be required to consider setting cost-based access prices for anchor services in future regulatory periods. Setting cost-based prices for individual services may be challenging, given difficulties in allocating costs between different types of regulated services. This issue is discussed in **Chapter 7**.

- Q7 How relevant to the fibre input methodologies are the three key economic principles used under Part 4?
- Q8 How does the prospect of infrastructure-based and access-based competition affect the application of the three economic principles in the fibre input methodologies?
- Q9 What other economic principles should we have regard to when developing the fibre input methodologies? For example, should we include pricing efficiency as an economic principle for fibre?

¹⁴⁵ At para 7.3.10.

¹⁴⁶ "Input methodologies: Reasons paper", above n 49, at paras 7.3.11-7.3.16.

¹⁴⁷ For example, see Commerce Commission "Review of Auckland International Airport's pricing decisions and expected performance (July 2017 - June 2022) - Final Report - Summary and analysis under section 53B(2) of the Commerce Act 1986" (1 November 2018) at para 332.

7. Issues for early discussion

- 7.1 This chapter seeks views on a number of issues we have identified as relevant to the process of setting input methodologies for our new regime. We are raising these views early because:
- 7.1.1 we consider it important to get started on our work as early as possible given the statutory timeframes for implementing our new regime; and
 - 7.1.2 the issues we have identified will impact on the form and content of the fibre input methodologies.
- 7.2 This is an initial list of issues only, and is not intended to be comprehensive. We recognise there are other areas not covered, such as the capital expenditure (capex) input methodology or treatments of taxation, and we will be discussing these matters in later papers.
- 7.3 At the end of this chapter we invite you to identify any other key input methodology-related issues that you wish to raise at this stage. As described in **Chapter 3**, you will also have the opportunity to give your views on other matters relating to other services regulated under the new framework development as part of our wider consultation processes.

Structure of this chapter

- 7.4 This chapter describes ten issues that relate to the technical application and content of the fibre input methodologies. We start by identifying regime-wide matters, followed by matters that relate to specific input methodology topics.
- 7.5 Table 7.1 lists issues and maps them to the relevant input methodology where applicable.

Table 7.1: issues for early discussion

Area / input methodology	Issue
Regime-wide	Issue 1: Scope of regulated services
	Issue 2: Practical application of s 166(2)(b)
	Issue 3: Matters for which input methodologies are determined
Valuation of assets	Issue 4: Scope of the regulated asset base and its valuation
	Issue 5: Calculation of initial losses and Crown financing
Cost allocation	Issue 6: Allocating common costs between FFLAS and other services

	Issue 7: Allocating common costs between types of FFLAS
Cost of capital	Issue 8: Using Part 4/FPP approach for fibre regulation
Quality dimensions	Issue 9: Scope of the quality dimensions input methodology
Regulatory rules and processes	Issue 10: Input methodologies that support the setting of Chorus' price-quality path

Regime-wide issues

7.6 The issues in this section cut across multiple areas of our regime:

- 7.6.1 the scope of regulated services;
- 7.6.2 Practical application of s 166(2)(b); and
- 7.6.3 matters for which fibre input methodologies are determined.

Issue 1: Scope of regulated services

7.7 FFLAS will be regulated under Part 6 of the amended Act. It is important that we clearly understand the scope of regulated services as this has direct implications for our work in developing the input methodologies. Interested persons will also need to have a clear idea of the services that are regulated when making submissions as part of our consultation process.

Fibre fixed line access services

7.8 A “fibre fixed line access service” is defined in the amended Act as a “telecommunications service that enables access to, and interconnection with, a regulated fibre service provider’s fibre network...”.¹⁴⁸ The amended Act goes on to define a “fibre network” 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.

¹⁴⁸ Section 5.

- 7.9 FFLAS encompasses both layer 1 and layer 2 by definition.¹⁴⁹
- 7.10 The definition of FFLAS expressly excludes certain telecommunications services, including:
- 7.10.1 services that are self-consumed (where the ultimate recipient of the service is the regulated provider or a related party); and
 - 7.10.2 if the service is provided in any place over a copper line, other than where the copper line is within an end-user's premises or building.¹⁵⁰

Regulations will set out which services are subject to information disclosure and price-quality regulations

- 7.11 Prior to the implementation date, regulations made by the Governor-General under s 222 of the amended Act will:
- 7.11.1 specify the regulated providers who provide FFLAS as being subject to information disclosure regulation, price-quality regulation, or both; and
 - 7.11.2 describe the services that are regulated for information disclosure or price-quality regulation (for example, with reference to geographic areas, end-users, or technical specifications).¹⁵¹
- 7.12 As discussed in **Chapter 4**, we expect that the initial regulations will prescribe that Chorus will be subject to information disclosure and price-quality regulation, and the other LFCs will be subject to information disclosure regulation.¹⁵²

What activities or services constitute regulated services?

- 7.13 Chorus and the other LFCs engage in a range of activities and provide a variety of services. These include some which clearly will be regulated as FFLAS, such as

¹⁴⁹ FFLAS could also encompass higher layers. The FFLAS providers who will be regulated currently have line of business restrictions preventing them from providing services above layer 2.

¹⁵⁰ See definition of fibre fixed line access service, para (b) in s 5.

¹⁵¹ The regulations made under s 222 must describe the services in respect of which the supplier is subject to information disclosure or price-quality regulation, which may include without limitation: (1) the geographic area in which the service is supplied, (2) the service's end-users, (3) the service providers who seek access to the service, (4) the technical specifications of the service, and (5) any other circumstances in which the service is supplied.

¹⁵² See the June 2017 Cabinet paper submitted to the Cabinet Economic Growth and Infrastructure Committee by the, then, Minister of Communications page 28, para 16-18: <https://www.mbie.govt.nz/publications-research/publications/telecommunications/teleco-review-cab-paper.pdf> and the Telecommunications (New Regulatory Framework) Amendment Bill, 293-1 (explanatory note) at 2.

wholesale broadband products provided over the UFB network, and others which clearly will be excluded, such as services provided over Chorus' copper network.

- 7.14 However, for some activities or services this distinction may be less clear—for example, Chorus reported in 2018 that it derived revenues from “value-added network services”, “infrastructure services”, “field services”, and “other services”.¹⁵³ The other LFCs also generate revenues from a range of services, such as contracting services for the construction and maintenance of fibre networks.
- 7.15 The term “telecommunications service” is defined in the Act to mean “any goods, services, equipment, and facilities that enable or facilitate telecommunication”.¹⁵⁴ The term “telecommunication” is further defined in s 5:

(a) means 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....

- 7.16 We think the relevant questions to consider when assessing whether an activity or service constitutes a regulated service are:

- 7.16.1 Is the supplier subject to information disclosure or price-quality regulation in respect of one or more services under the regulations made under s 222?
- 7.16.2 Is what the supplier is doing part of a “telecommunications service” that meets the definition of FFLAS in s 5, taking account of the specific exclusions in the definition?
- 7.16.3 Are the FFLAS services in respect of which the supplier is subject to information disclosure or price-quality regulation under the regulations made under s 222?

- 7.17 We will need to interpret and apply the relevant definitions when considering whether particular activities or services are regulated. Subject to the regulations that must still be made, we do not think a service necessarily needs to be delivered over a fibre network, or consist of the conveyance of telecommunication signals or information in order to be regulated. Rather, the service needs to “enable or facilitate telecommunication” in a way that “enables access to, and interconnection with, a ... fibre network”. Regulated services may therefore include services that support the operation of a network or its users, and can include the provision of “goods”, “equipment” or “facilities”.

¹⁵³ See Chorus, Annual Report 2018: <https://company.chorus.co.nz/reports>.

¹⁵⁴ Section 5.

Where services are provided over a copper line

- 7.18 The definition of FFLAS expressly excludes a service provided in any place over a copper line, other than where the copper line is within an end-user's premises or building. While all connections to end-users from exchanges to cabinets typically now use fibre media, copper lines are commonly used for the last segment of a connection to copper end-users.
- 7.19 This means that any telecommunications service provided over a copper line will not be FFLAS unless the copper is located solely within an end-user's premises or building. Where a copper line is used in a network for the last segment of a connection (including, for example, a connection employing VDSL technology) then services provided with respect to that connection will be excluded from FFLAS, and thus price-quality and information disclosure regulation. Our preliminary view is that the entire service to the end-user is excluded, not just the portion relating to the copper segment.
- 7.20 If copper connections are subsequently upgraded or replaced with fibre for the last segment to the end-user such that the entire connection is provided over fibre media then services provided with respect to the connection will become regulated at that time.

Specified points of interconnection

- 7.21 As set out in paragraph 7.11, the regulations made under s 222 will describe the services being regulated.
- 7.22 Under s 226 of the amended Act we will prescribe, by public notice, points of interconnection (POIs) for the purposes of establishing "fibre handover points". Fibre handover points establish the outermost boundaries of a regulated provider's "fibre network" and therefore affect the scope of regulated services defined as enabling access to, and interconnection with, the networks.
- 7.23 The first notice we issue must prescribe POIs based on those that apply at 31 December 2019 under the UFB initiative, together with any additional POIs. The notice can be amended or revoked from time to time, but POIs must not be amended unless the amendment is for an appropriate technical purpose and is consistent with the purpose stated in s 162 of the Act.¹⁵⁵ While s 226 does not reference s 166 or s 166(2)(b) explicitly, we consider that these provisions are also relevant when we make our decisions on the POIs.¹⁵⁶

¹⁵⁵ Section 226(4).

¹⁵⁶ We note that to the extent that there may be a lack of clarity as to whether or what handover points we should specify, that is not an input methodology issue.

- 7.24 We consider that between the regulations made under s 222 and the POIs we prescribe, it will be sufficiently clear what services are regulated services.

Services provided above layer 2

- 7.25 Chorus is currently subject to line of business restrictions under the Act and its Deeds of Undertaking, which prohibit it from offering services above layer 2 or end-to-end services.¹⁵⁷ Section 69SA of the amended Act, however, will allow us to grant exemptions from these restrictions with effect from the implementation date, meaning that Chorus could potentially provide additional services above layer 2 (for example, home routers, or content management or distribution services).
- 7.26 Our preliminary view is that services above layer 2 will be regulated services if they meet the relevant definitions in the Act and are regulated FFLAS under the regulations made under s 222. This will involve the assessment described in paragraph 7.16. .

Deregulation

- 7.27 After the implementation date, we may review whether one or more FFLAS should no longer be regulated under price-quality regulation or under Part 6 entirely. We must make a recommendation to the Minister, who then has the ability to recommend to the Governor-General that services are excluded from regulation. Services can be deregulated with reference to geographic region, end-users, access seekers, technical specifications, or any other circumstances in which the service is provided.¹⁵⁸

Impact of changes in the scope of regulated FFLAS on the input methodologies

- 7.28 The ability for the scope of regulated services to vary over time (described above) will have implications for the input methodologies that support information disclosure and price-quality regulation. For example:
- 7.28.1 Assets previously associated with the provision of unregulated services, which are subsequently used to provide regulated FFLAS will need to be accounted for (eg, we will need to consider how and when those assets are brought into the RAB, how they are valued, and how this interacts with capital expenditure input methodology). Conversely, if services are

¹⁵⁷ Under s 69R of the Act, Chorus is required to enter into undertakings in favour of the Crown, prohibiting it from providing services above layer 2. Section 69S prohibits Chorus from supplying telecommunications links to customers except—between an end-user's building (or, in the case of a commercial building, the two building distribution frames) and a Chorus local or aggregation point; and between two Chorus local aggregation points.

¹⁵⁸ Section 208(5).

deregulated it is likely that the value of assets relating to those services will need to be removed from the RAB.

- 7.28.2 Changes in the scope of services that are regulated are likely to affect the allocations made under the cost allocation input methodology for current or future regulatory periods.
- 7.28.3 We will need to consider how changes in the services that are regulated during a regulatory period are reflected in any price-quality paths applying for that period and how those events affect subsequent setting of price paths.

Q10 What are your views on our approach to determining the activities and/or services that fall within the scope of FFLAS (including the treatment of copper-based services, POIs, and services provided above layer 2)?

Q11 Are there any further key implications of the scope of regulated services for the setting of input methodologies for price-quality or information disclosure regulation?

Issue 2: Practical application of s 166(2)(b)

- 7.29 Section 166(2) requires us to make the recommendation, determination, or decision that we consider best gives (or is likely to best give) effect to:
- 7.29.1 the purpose in s 162 which is to promote the long-term benefit of end-users in markets for FFLAS by promoting outcomes that are consistent with outcomes produced in workably competitive markets; and
- 7.29.2 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.
- 7.30 The discussion below sets out a hypothetical example intended to illustrate how the promotion of workable competition could be relevant to the setting of input methodologies. It illustrates how we might apply s 166(2)(b) in practice, in a manner which complements the application of s 162.
- 7.31 The example should be read in conjunction with the discussion of our interpretation and approach to s 162 and s 166 in **Chapter 5**.

*Example: Expenditure proposals and promotion of access-based competition–fibre unbundling*¹⁵⁹

- 7.32 This example is about FFLAS expenditure that promotes competition at layer 2 through access to layer 1 (ie, layer 1 unbundling) in the case of a regulated FFLAS provider that is subject to price-quality regulation. A key benefit of unbundling is that it promotes potential or actual competition at layer 2 and can therefore promote the beneficial outcomes associated with workably competitive markets, such as incentivising increased efficiency in the provision of layer 2 services.
- 7.33 Assume that the forecast expenditure used to inform the setting of a price-quality path for a regulated supplier for a regulatory period may, from time to time, include the costs of upgrades to exchanges, fibre flexi points (FFPs) or the equipment within them.
- 7.34 Further, assume that there are choices that could be made between providing a lower cost upgrade solution, and another, more expensive or higher specification solution that would better promote layer 2 competition. For example, this could be about the level of additional spare capacity of a FFLAS provider's network in order to allow access seekers that are unbundlers to install their equipment, or higher specification technology to allow wavelength unbundling.¹⁶⁰
- 7.35 Under s 175(1)(d)(ii) we need to determine an input methodology that prescribes the methodologies for evaluating the expenditure proposals of regulated suppliers. The results of our evaluation under the input methodology will inform the expenditure allowances we approve for suppliers that are subject to price-quality regulation. If we adopt a similar approach to the existing price-quality regulation under Part 4 of the Commerce Act, the expenditure allowances will be one of the main building blocks used to determine the price-quality paths for any regulated suppliers subject to price-quality regulation.
- 7.36 In this example, the question we would consider is whether the input methodology should specifically include criteria relating to the consideration of the promotion of workable competition in the market for layer 2 services when we evaluate capital expenditure proposals submitted by the regulated supplier in relation to layer 1.
- 7.37 To the extent that we consider that promoting workable competition in the market for layer 2 services would be relevant, then the input methodology could include criteria that facilitate the approval of expenditure for upgrades that have a higher cost where this would promote workable competition in the market for

¹⁵⁹ We note that Chorus' deeds require it to supply layer 1 unbundled services on an equivalence of inputs basis from January 2020.

¹⁶⁰ Wavelength unbundling is achieved by sending a number of wavelengths (colours) through a single fibre, and assigning the wavelengths to different access seekers. It is a form of Layer 1 unbundling.

layer 2 services for the long-term benefit of end-users. It is possible that the inclusion of such criteria in the input methodology could lead us to approve a higher cost solution when evaluating a capital expenditure proposal under the input methodology compared to another solution in the absence of such criteria.

- 7.38 We note that if we follow the Part 4 model, our role in this scenario would be to assess the expenditure proposed by the regulated supplier, and to approve it in full or in part or to decline it. Our role in creating or implementing this input methodology would not be to require expenditure. Other elements of the regime, such as quality regulation, may be more influential in driving a supplier's decision of whether (and how much) to spend on the upgrades. For example, s 164 defines quality dimensions as potentially including responsiveness to access seekers. To the extent that access seekers demand access to unbundled layer 1 services, then a potential quality standard based on this quality dimension may be the main driver of a supplier's expenditure proposals.

We invite your views on our example regarding the practical application of s 166

- 7.39 We invite submissions on the following questions. We are interested in your comments on our example regarding the practical application of s 166.

Q12 Do you agree with our application of s 166(2)(b) in practice as illustrated in the example? Where else may s 166(2)(b) be relevant in setting input methodologies?

Issue 3: Matters for which input methodologies are determined

- 7.40 As discussed in **Chapter 3**, the purpose of the input methodologies is to promote certainty for fibre service providers, access seekers and end-users in relation to the rules, requirements and processes applying to regulation of fibre services.¹⁶¹ The input methodologies are applied in s 170 determinations for information disclosure and price-quality regulation, which set out the requirements that apply to each regulated fibre service provider.
- 7.41 Section 175(1) lists the fibre input methodologies we must determine by the implementation date as being:
- 7.41.1 cost of capital;
 - 7.41.2 valuation of assets;
 - 7.41.3 allocation of common costs;
 - 7.41.4 treatment of taxation;

¹⁶¹ See s 173. In addition, s 175(2) states that every input methodology listed must, as far as is reasonably practical, set out the relevant matters in sufficient detail so that each affected regulated fibre service provider is reasonably able to estimate the material effects of the input methodology on the provider.

- 7.41.5 quality dimensions;
- 7.41.6 regulatory processes and rules (such as the specification and definition of prices, pass-through costs and price-quality path reconsideration); and
- 7.41.7 capital expenditure projects.
- 7.42 We consider the nature of the fibre input methodologies listed in s 175(1) to be sufficiently clear. The list is similar to that contained in ss 52T and 54S of the Commerce Act for the electricity, gas and airport sectors.¹⁶² The input methodology for “quality dimensions” is a new addition and is discussed further at **Issue 9** below.
- 7.43 Our proposal is to only determine the mandatory input methodologies listed in s 175(1) when implementing our new regime for fibre services. This is because we consider that our regime will be workable if those input methodologies listed are determined, and that this would meet the purpose of s 173 and our obligations under s 166.¹⁶³ Determining only these input methodologies will assist us with meeting the implementation deadline.¹⁶⁴
- 7.44 We may determine additional implementation details as part of making the s 170 determinations.
- 7.45 We note that s 177(2) states that the Commission may also, at any time after the implementation date, determine further input methodologies for FFLAS. We are not seeking views at this time on input methodologies to be set after implementation date.
- 7.46 We are also considering the appropriate level of prescription within each of the fibre input methodologies. There could be benefits to using a more 'principle-based' regulatory approach in some of the fibre input methodologies and the subsequent price-quality and information disclosure regimes. Broadly speaking, by including more principle based regulations, it could future-proof elements of our regulation. This is because principles could allow Chorus and the other LFCs to innovate to meet the changing demands of access seekers and end-users; as

¹⁶² Certain matters have been omitted, notably input methodologies for “pricing methodologies” (cf s 52T(1)(b)) of the Commerce Act and for “customised price-quality path proposals” (s 52T(1)(d)). Section 54S of the Commerce Act relating to capital expenditure proposals applies only to Transpower.

¹⁶³ Further information about the s 173 purpose and our obligations under s 166 can be found in **Chapter 5** above.

¹⁶⁴ We note that in the context of Part 4 under the Commerce Act, the Court of Appeal has held that “the fact that the publication of an input methodology for resetting prices would increase certainty does not, of itself, mean that the Commission must publish such a methodology. Ultimately, determining the Commission’s obligations in this regard is a matter of statutory interpretation.” See *Commerce Commission v Vector Limited*, above n 95, at para 34(c).

opposed to meeting a prescribed requirement set at the beginning of a regulatory period.

- 7.47 It may be more appropriate for some input methodologies to be more 'principle-based' than others. For example, it may be appropriate for the quality dimensions input methodology to be principle based, but to use a more prescriptive approach for the cost of capital input methodology. The question of principle versus prescriptive regimes spans both the fibre input methodologies, as well as the setting of the price-quality and information disclosure regimes. We will therefore need to consider whether it is more appropriate to include any principles in the setting of the input methodologies, or the setting of the price-quality and information disclosure regimes.

Q13 What are your views on our proposal to determine only those input methodologies listed in s 175(1) by the implementation date? What additional matters should be determined as input methodologies by the implementation date?

Q14 Which of the fibre input methodologies (if any) do you consider most appropriate for us to consider the use of a more 'principle-based' specification?

Valuation of assets input methodology

- 7.48 The issues in this section relate to the valuation of assets to be included in the **RAB**. The issues relate to the:

- 7.48.1 scope of the RAB and its valuation; and
7.48.2 calculation of initial losses and Crown financing.

Issue 4: Scope of the regulated asset base and its valuation

- 7.49 BBM regulation uses the concept of the RAB to represent a regulated supplier's investment in capital assets. The RAB records the assets that are employed by the supplier to provide regulated services and the associated asset values.
- 7.50 Under price-quality regulation, we set the maximum revenues or prices at a level where we assess suppliers can expect to recoup their capital costs over time. That is, suppliers can expect to receive a return on, and return of, capital through the allowed maximum revenues or prices:^{165 166}

¹⁶⁵ See Figure 3.3 for a diagram showing how BBM uses the RAB to calculate maximum allowable revenues or prices.

¹⁶⁶ See Chapter 6 for discussion on Financial Capital Maintenance principle

- 7.50.1 The return on capital is the amount needed to cover the ongoing costs of investment in the assets. It is calculated by multiplying the value of the RAB by the WACC; and
- 7.50.2 The return of capital equates to the diminution in asset values over time (known as depreciation). It is calculated by applying a depreciation methodology to the value of the RAB over the lifetime of the assets.
- 7.51 For information disclosure, these measures can be used to monitor the financial performance of a supplier as part of assessing profitability. The RAB can also be useful in analysing the nature and composition of assets employed by a firm.
- 7.52 The Act requires us to set an input methodology for the “valuation of assets, including depreciation, and treatment of revaluations”. In essence, the asset valuation input methodology will specify which assets are included in the RAB and what values those assets have initially and over time.

What assets should be included in the RAB?

- 7.53 Under Part 4, we did not consider it necessary for the asset valuation input methodology to include an exhaustive or prescriptive list of types of assets that would be included in the RAB. Rather, the high-level approach taken was:
 - 7.53.1 to adopt the assets disclosed in past valuations;
 - 7.53.2 prescribe certain rules for particular types of assets, such as intangible assets, works under construction and easement land; and
 - 7.53.3 permit certain one-off adjustments, for example, to correct for erroneous omissions or inclusions in the past recording of assets.
- 7.54 The asset valuation input methodology interacts with the cost allocation methodology 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.¹⁶⁷ Assets constructed or acquired after the inception of the regime are recognised in the RAB at their time of commissioning.
- 7.55 We propose to use a similar high-level approach to the inclusion of assets in the RAB under Part 6 of the amended Act, recognising that there may be a need to develop detailed rules for particular types of assets. Given that fibre networks have been constructed relatively recently we understand that accurate accounting records exist for all, or most, assets employed in supplying regulated services.

¹⁶⁷ See Issue 6 below for a more detailed explanation of cost allocation.

7.56 While we consider that the high-level approach taken under Part 4 will be generally appropriate under Part 6, we will likely face the following practical issues:

7.56.1 What is the appropriate degree of granularity to be adopted by suppliers when recording assets in their RAB, for both information disclosure and price-quality regulation? For example, should the RAB treat all assets used to provide FFLAS services as a single aggregated value, or should they be disaggregated into a number of different asset categories? If categories are to be used, should they distinguish between layer 1 and 2 assets, or geographic regions?

7.56.2 How should assets enter or exit the RAB due to changes in scope of regulated services? For example, where the fibre currently serving copper end-users is redeployed to supply fibre end-users. Also, where services are deregulated we will need to consider how assets (and what portion of initial losses) included in the RAB should also be removed.

What value should assets in the RAB be given?

7.57 Section 176(1) specifies the "initial value" of a fibre asset as the cost:

7.57.1 incurred by a regulated fibre service provider in constructing or acquiring the fibre asset (net of capital contributions); or

7.57.2 if the asset was owned by Chorus before 1 December 2011, recorded by Chorus for the fibre asset in Chorus' published general purpose financial statements as of 1 December 2011.

7.58 In either case, the cost must be adjusted to the implementation date for accumulated depreciation and impairment losses (if any) recognised by the provider under generally accepted accounting practice in New Zealand.¹⁶⁸

7.59 We consider the directions in s 176(1) to be sufficiently clear about the values to be attributed to assets at the implementation date.

7.60 For assets constructed or acquired on or after implementation date our preliminary view is that the initial value of those assets in the RAB should equal the cost incurred by the provider in constructing or acquiring those assets. The cost would be determined under generally accepted accounting practice in New Zealand unless a specific regulatory reason exists to modify the application of those rules.

¹⁶⁸ Financial losses calculated from 1 December 2011 to the implementation date must also be included as an asset under s 176(2) - see Issue 5 below.

- 7.61 This proposed treatment is similar to that applying under Part 4 of the Commerce Act, and is consistent with expectations of FCM (see further Chapter 6).

Q15 What are your views on our proposal to use a high-level approach consistent with Part 4 for the asset valuation IM? Please note that we have not yet set out our views on the treatment of depreciation or asset revaluations.

Q16 What are your views on our proposed approach to adopt cost as the measure of asset value for assets constructed or acquired after implementation date?

Q17 What specific rules or approaches (if any) are needed for the treatment of particular types of assets, or to deal with practical aspects of asset valuation?

Issue 5: Calculation of initial losses and Crown financing

- 7.62 It is understood that UFB suppliers will likely incur financial losses during the initial period of operation of the UFB network. This is because initial end-user uptake of UFB services and the associated revenues recovered in accordance with the UFB contracts are unlikely to cover the fixed and/or variable costs incurred during that period.

- 7.63 When determining the input methodology for asset valuation, the Act requires us to capitalise suppliers' financial losses at the implementation date, and treat them as an additional asset to be included in the RAB. The capitalised losses will inform the disclosures made by providers under information disclosure regulation and the prices or revenues recovered over time by providers subject to price-quality regulation.

- 7.64 We anticipate we will need to consider two key aspects:

7.64.1 the method for calculating the financial losses; and

7.64.2 the treatment of Crown financing.

Method for calculating financial losses

- 7.65 Section 176 governs the calculation of financial losses.

7.65.1 Section 176(2) states that each regulated fibre service provider is treated as owning a fibre asset at the implementation date with a value equal to the financial losses incurred by the provider under the UFB initiative.

7.65.2 Section 176(2AA) states that the value of financial losses must:

7.65.2.1 take into account any "accumulated unrecovered returns" on investments made by the supplier under the UFB initiative for the period from 1 December 2011 up until the implementation date; and

7.65.2.2 refer to the actual costs incurred by the provider in respect of Crown financing provided to the supplier (or a related party) for those investments.

7.66 We interpret the direction to calculate “accumulated unrecovered returns” on investment to require the use of a building blocks approach. The building block approach would be broadly similar to that applied after the implementation date to calculate profitability for information disclosure and maximum prices or revenues for price-quality regulation (see **Chapter 3**).

7.67 To undertake the calculation we propose to apply the following formula to calculate the building blocks costs for each year, or part year, of the loss period:

$$(Investment \times RROI) + Depreciation + Opex + Tax$$

Where—

<i>Investment</i>	=	the accumulated cost of a provider’s UFB assets calculated consistently with the values calculated under s 176(1);
<i>RROI</i>	=	rate of return on investment;
<i>Depreciation</i>	=	value of depreciation and impairment losses per s 176(1);
<i>Opex</i>	=	operating expenditure incurred on the UFB network by providers, calculated consistently with generally accepted accounting practice; and
<i>Tax</i>	=	allowance for regulatory taxation calculated consistently with the input methodologies for information disclosure and price-quality regulation. ¹⁶⁹

7.68 Simplifying assumptions could be used to allocate capital and operating expenditure costs between assets shared between UFB and non-UFB (eg, copper) services. For example, allocation values could be determined with respect to the relative revenues received from end-users of UFB and non-UFB services. Intra-year cash flow timing assumptions could also be applied, for instance, consistently with the method to be used for information disclosure or price-quality regulation.

7.69 The total revenues derived by providers from end-users of services in each year of the loss period would be subtracted from the building blocks costs calculated for the respective years. The residual amounts could then be adjusted to their present value at the implementation date using a discount rate equal to the return on investment, and aggregated to arrive at the total loss for each provider.

¹⁶⁹ The allowance for regulatory taxation may be calculated with consideration of past tax losses, deferred taxation and other tax effects.

- 7.70 We also expect there to be various process-related matters to resolve in relation to the calculation of financial losses, such as obtaining appropriate financial information and the timing of when the calculation is undertaken. We propose to identify and work through those issues as part of our emerging views and draft decisions.

Q18 What are your views on our interpretation and proposed application of ss 176(2) and (2AA) for the calculation of financial losses? In particular:

Q18a What is your view on any simplifying assumptions for the allocation of common capital and operating expenditure costs that should be applied? and

Q18b What are your views on how the rate of return on investment and discount rate for the loss period should be calculated?

Treatment of Crown financing

- 7.71 As part of the UFB initiative the New Zealand government provided debt and equity financing on a concessional basis to the UFB providers or related parties. Section 176(2AA) of the Act provides that the actual costs of the Crown financing should be taken into account in calculating the financial losses up until the implementation date.

- 7.72 We have assumed that the actual financing costs to the UFB providers or related parties of the concessional funding during the loss period will be nil. This is because no interest or dividends are payable by providers on the debt or equity instruments. We have also assumed that no premium or discount has applied, or is expected to apply, to any sale, repayment or redemption of the instruments before implementation date.

- 7.73 There are at least two methods by which actual costs for Crown financing (ie, nil) could be reflected in the calculation of financial losses:

- 7.73.1 **Method 1:** Subtract the face value of the concessional financing from the accumulated cost of UFB assets (ie, the 'Investment' component of the formula) when applying the required rate of return for the relevant year.

This method would ensure that the return on investment applies only to the value of investments backed by non-Crown financing in any year. The adjustment would not affect the calculation of depreciation per s 176(1).

- 7.73.2 **Method 2:** Subtract the present value of the overall benefit of concessional funding from the amount of financial losses at implementation date.

This adjustment would not affect the return on capital component of the building blocks calculation or the calculation of depreciation per s 176(1). The benefit of concessional funding for each year of the loss period could be calculated as the difference between the actual costs (assumed to be nil)

and a financing cost that would otherwise have applied if Crown financing had not been advanced. The annual benefits would then be combined on a present value basis, to determine the present value of the overall benefit of the concessional funding.

- 7.74 Although these two methods may be expected to produce the same net effect in present value terms, they could have different conceptual or practical advantages. If the cost of UFB assets includes a capitalised cost of finance under generally accepted accounting practice then this also may require adjusting to arrive at the correct economic result. We would also need to consider the treatment of any direct or indirect transaction costs (eg, fees or charges) associated with the Crown financing.

Q19 What preference do you have regarding the two methods outlined above for reflecting the actual costs of Crown financing, and why? What other methods could be used?

Q20 How should we consider the involvement of related parties to the funding arrangements (eg, LFC parent companies)?

Cost allocation input methodology

- 7.75 Under s 175(1)(a)(iii) of the Act we must determine methodologies for evaluating or determining the "allocation of common costs (for example, between activities, businesses, access seekers, regulated services, or geographic areas)".
- 7.76 While many of the UFB providers costs may be specific to one type of service ('directly attributable'), other costs may relate to multiple services (or types of services) which may include both other telecommunications services and non-telecommunications services. We refer to costs that relate to multiple services (or types of services) as 'common costs'. Common costs can include costs from two categories. Those that are incurred in providing specific services (eg, shared /joint costs relating to physical assets such as local exchanges or ducting), and those costs that do not relate to specific services (eg, corporate overhead costs). The services concerned may also include both regulated FFLAS and other services.
- 7.77 Cost efficiencies from providing multiple services are relevant to the long-term benefit of FFLAS end-users as recognised in the s 162 purpose statement. Specifically, the way costs are allocated between services has a bearing on how efficiency gains from supplying more than one type of services together (ie, s 162(b)) arise and are shared with end-users of regulated services (ie, s 162(c)) over time. S 166(2)(b) may also be relevant where costs are allocated between regulated FFLAS and unregulated services because of its potential impact on competition.
- 7.78 We anticipate we will need to consider two key issues in determining the cost allocation input methodology:

- 7.78.1 How to allocate 'common costs' between regulated FFLAS and other services; and
- 7.78.2 Whether common costs should be allocated between the different types of regulated FFLAS.

Issue 6: Allocating common costs between regulated FFLAS and other services

- 7.79 In order to determine the overall cost of providing the regulated FFLAS services, it is necessary to allocate costs between the services that are regulated under the FFLAS regime, and all other services. The latter is likely to include services that are regulated under other parts of the Act (eg, Chorus' legacy copper-based access services), or subject to other economic regulation (eg, electricity distribution line services under Part 4 of the Commerce Act), or which are not subject to economic regulation.
- 7.80 We propose adopting the approach to cost allocation we have used for information disclosure regulation, customised price paths and individual price path regulation under Part 4 when allocating costs between regulated FFLAS and other services. In particular, we propose to determine a cost allocation input methodology that allocates costs to regulated fibre services which are 'directly attributable' (wholly and solely associated with a single type of service), together with a proportion of costs 'not directly attributable' to those regulated services. Note that these 'not directly attributable' costs may include costs from both regulated and unregulated services.
- 7.81 An important aspect of this approach is how the allocation of 'not directly attributable' costs help achieve the s162(b) and (c) purpose statements. The UFB providers can obtain efficiencies from using shared assets and processes to provide multiple services. The way 'not directly attributable' costs are allocated impacts how much cost is allocated to FFLAS, and hence the UFB providers' maximum allowable revenues. The pricing of FFLAS impacts the extent that these efficiency gains are shared with end-users over time, as envisaged in s 162(c).
- 7.82 S 166(2)(b) may also be implicated where costs are allocated between FFLAS and unregulated services as the allocation may impact competition, including the incentives for access competition. Over-allocating 'not directly attributable' costs to FFLAS also risks creating negative outcomes, including higher prices for FFLAS end-users (ie. they don't share the benefits from efficiency gains, 162(c)) and a potential lessening of competition in competitive (or potentially competitive) markets (s166(2)(b)).

Q21 How should costs be allocated between regulated FFLAS services and other services? Are there features of suppliers or services that require particular consideration (eg, business structure, presence of other forms of economic regulation, accounting systems etc)?

Issue 7: Allocating common costs between types of FFLAS

- 7.83 The second issue is whether it is necessary to allocate costs between the different types of FFLAS that are provided, and if so, how.
- 7.84 Fibre service providers are currently supplying more than one type of FFLAS, and will continue to do so after the implementation date. For example, voice and broadband services will be delivered at different technical specifications, and equally for the layer 2 'bitstream' services.¹⁷⁰
- 7.85 As discussed in **Chapter 6**, economic principles such as pricing efficiency can be important for FFLAS due to potential infrastructure-based and access-based competition. The allocation of common costs between different types of FFLAS can inform our assessments of the structure of FFLAS prices, and whether it promotes efficient outcomes for the long-term benefit of end-users.
- 7.86 In addition, we consider that an input methodology that allocates common costs would be potentially relevant to some of our responsibilities in the Act. For instances, the Act allows us to review maximum prices for anchor services, DFAS and the unbundled fibre service under price-quality regulation after the implementation date. A price for these services must be a “cost-based price”.¹⁷¹
- 7.87 It is possible that the allocation methodology should differ depending on the situation at hand. A methodology that informs the calculation of a cost-based price for layer 1 services, for instance, might be concerned primarily with the price at which competition at the layer 2 level is likely to emerge. This may differ to the approach used to calculate a cost-based price for layer 2 services such as anchor services.

Q22 What views do you have on whether an input methodology for allocating costs between different FFLAS services should be set for information disclosure and/or price-quality regulation?

Cost of capital input methodology

- 7.88 We are seeking views on the extent to which we should use previous work on cost of capital, such as the approach used for Part 4 or FPP determinations, as a starting point for our fibre input methodologies.

¹⁷⁰ For Chorus, anchor services, unbundled 'layer 1' fibre services (a separate product as well as an input to layer 2 or 'bitstream' services), and DFAS services will also be supplied from implementation date –in **Chapter 1** above.

¹⁷¹ See ss 206(6) and 207(5) of the Act.

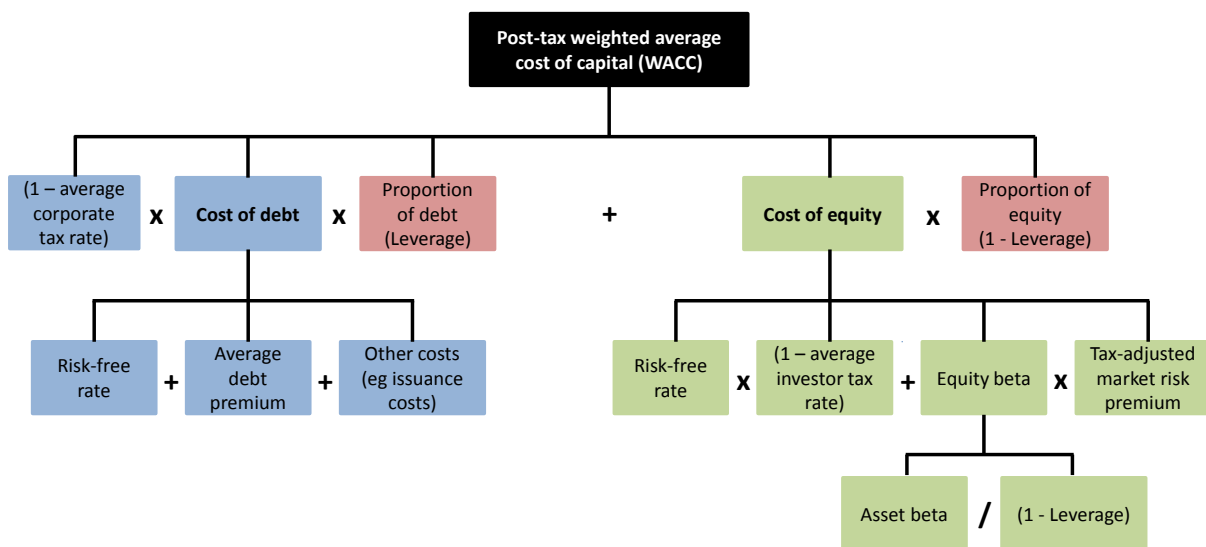
Issue 8: Using Part 4/FPP approach for fibre regulation

- 7.89 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.
- 7.90 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.
- 7.91 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.
- 7.92 WACC is one of the key inputs under BBM regulation. The WACC estimate can be used to calculate the allowed return on capital when setting price-quality paths. It can also provide a benchmark for assessing the profitability of fibre service providers under information disclosure regulation.

We propose to use the Part 4 cost of capital input methodologies as our starting point

- 7.93 We propose to use the cost of capital input methodologies determined under Part 4 as the starting point for FFLAS. These input methodologies currently apply to regulated electricity lines services, gas pipeline services and specified airport services.
- 7.94 Figure 7.1 summarises the key components of the Part 4 cost of capital input methodologies.

Figure 7.1: Key components of Part 4 cost of capital input methodologies



- 7.95 The Part 4 cost of capital input methodologies were developed through an extensive consultation process involving a range of stakeholders (including an

expert advisory panel) and were upheld in the input methodology merits appeals to the High Court. They were also used as the basis for estimating WACC for the UCLL and UBA FPP determinations.¹⁷²

- 7.96 Our view is that the high-level approach to estimating WACC in the Part 4 input methodologies is also appropriate for the FFLAS, particularly given similarities in the legislation. We see no reason to take a different conceptual approach regarding the returns investors require between the relevant sectors.
- 7.97 Consistent with the analysis and reasons in the Part 4 cost of capital input methodologies and the UCLL/UBA FPP determinations, at this stage we propose to use the simplified Brennan-Lally capital asset pricing model (**CAPM**) to estimate the cost of equity. Although the simplified Brennan-Lally CAPM has imperfections, this model best fits the particular features of the New Zealand taxation system. It also has widespread support in New Zealand.¹⁷³
- 7.98 Other features of the Part 4 cost of capital input methodologies include:
- 7.98.1 the risk-free rate is estimated based on a three month average of prevailing interest rates on New Zealand government bonds at the time each WACC determination is made;
 - 7.98.2 the debt premium is estimated as a five year historical average,¹⁷⁴ based on premiums observed on New Zealand corporate bonds (taking into account the sector-specific target credit rating);¹⁷⁵
 - 7.98.3 sector-specific asset beta, leverage, and benchmark long-term credit ratings are determined based on a comparator sample analysis; and
 - 7.98.4 other parameters, such as the tax-adjusted market risk premium (TAMRP) and debt issuance costs, apply across sectors.
- 7.99 Consistent with the Part 4 approach, we propose to estimate a sector-specific beta, leverage and credit rating when determining the cost of capital input

¹⁷² "Cost of capital for the UCLL and UBA pricing reviews", above n 135, at paras 33-42.

¹⁷³ "Input methodologies: Reasons paper", above n 49, paras 6.4.1-6.4.39.

¹⁷⁴ The methodology for estimating the debt premium under the UCLL and UBA FPPs differs from the current approach under the Part 4 input methodologies. In the FPPs we estimated the debt premium based on current interest rates and used a seven year term. "Cost of capital for the UCLL and UBA pricing reviews", above n 135, at paras 63-106.

¹⁷⁵ The Part 4 cost of capital input methodology also include a second component (in addition to WACC), referred to as the term credit spread differential (**TCSD**), which is an alternative to assuming a longer debt term. The TCSD allowance compensates suppliers for the additional debt premium that can be incurred from issuing debt with a longer original tenor than the five-year regulatory period. It applies to qualifying suppliers only.

methodologies for FFLAS. We expect this process to build on the telecommunications comparator sample analysis undertaken in the UCLL and UBA FPPs.¹⁷⁶

- 7.100 As indicated in **Chapter 6**, we also propose to consider whether there are asymmetric consequences of under-investment and over-investment that should be reflected in the WACC input methodologies for FFLAS. In particular, we propose to consider whether a percentile estimate above or below the mid-point should be applied.

Q23 What is your view on our proposal to use the Part 4 and UCLL/UBA FPP approach as the starting point when determining the cost of capital input methodologies for FFLAS?

Q24 What matters do you think will differ from the Part 4 approach, are novel for the regulated fibre sector, or will require re-estimation/a different approach? Should we re-estimate parameters that apply across sectors, such as the TAMRP?

Quality dimensions input methodology

- 7.101 Section 175(1)(b) requires an input methodology to be set for quality dimensions. The input methodology for quality dimensions is a new requirement (relative to Part 4), and we have not previously determined an input methodology for quality dimensions.¹⁷⁷

Issue 9: Scope of the quality dimensions input methodology

- 7.102 We are seeking views on a report we have commissioned from Cambridge Economic Policy Associates (CEPA) on the potential scope of the quality dimensions input methodology. This report is published alongside this paper.

Nature of the economic problem

- 7.103 Where there is little or no competition and prices / revenues are capped, there is a risk that a regulated firm's incentives to provide the quality that consumers demand may be weakened. As such, one of the input methodologies of our new regulatory regime is to provide incentives for fibre service providers to "supply fibre fixed line access services of a quality that reflects end-user demands."¹⁷⁸

¹⁷⁶ "Cost of capital for the UCLL and UBA pricing reviews", above n 135.

¹⁷⁷ We do have experience in setting quality dimensions under Part 4 however these were not in the form of an input methodology.

¹⁷⁸ Section 162(b).

7.104 We consider that this risk may be lower than in other sectors regulated under Part 4 for some aspects of quality, given that the UFB fibre networks are relatively new and have been built to certain specifications under the CIP agreements.

'Quality dimensions' and 'quality standards'

7.105 The term “quality dimensions” is defined in s 164(1) as:

measures of the quality of fibre fixed line access services, and may include (without limitation) responsiveness to access seekers and end-users.

7.106 Once the input methodologies have been determined for quality dimensions, these will be applied in setting the information that must be disclosed by fibre service providers under information disclosure regulation, as well as the quality standards that must be observed under price-quality regulation. The quality dimensions input methodology may relate to each of these types of regulation in different ways.

7.107 The amended Act also makes several references to “quality standards”, with s 193 stating that the price-quality paths must specify “the quality standards that must be met by a regulated fibre service provider”. Again, the Act is not prescriptive about how these standards should be set. Section 193(3) makes several suggestions as to what may be included in price-quality paths to incentivise fibre service providers to provide a level of quality that reflects end-user demands. However, s 193(4) states that these quality standards “...may be prescribed in any way the Commission considers appropriate (such as targets, bands, or formulas)”. Quality standards are an important part of price-quality regulation, ensuring in particular that suppliers do not compromise the quality of the service they provide.¹⁷⁹

Box 7.1: Indicative example of a 'quality dimension' vs 'quality standard'

While quality dimensions could feasibly take many different forms, one example could be:

- A quality dimension could be considered the relevant measure / area that is relevant for the quality of a fibre service providers services. For example, fault duration / frequency.
- The relevant quality standard that is chosen for a price-quality path linked to fault duration / frequency could be a standard of X number of faults per 100 lines, per X days. We could also apply incentives such as penalties, rewards and compensation for under- or over-performance as measured against that standard.

7.108 We are interested in hearing stakeholders’ views as to what should be considered “quality dimensions”. As the indicative example above sets out, the quality dimensions we set in the input methodologies will affect the “quality standards” set out in price-quality paths. This is in addition to the aspects of quality relevant

¹⁷⁹ *Vector Ltd v Electricity Authority* [2017] NZHC 1774 at [79].

to information disclosure regulation. We are also interested in views as to how the quality dimensions input methodology could interact with these forms of regulation, with particular reference to promoting certainty and incentives.

Retail and wholesale service quality

7.109 Part 7 of the amended Act aims to improve the quality of telecommunications services provided by retailers to end-users, including end-users of fibre. This overlaps with the regulation of wholesale service quality under Part 6. We will consider the extent to which the sections of the amended Act relating to retail service quality interact with wholesale quality in planning the work involved with our new powers under Parts 6 and 7, including developing the input methodologies for quality dimensions.

7.110 A risk we have identified with quality dimensions, is that any given dimension we set may not be wholly controllable by the wholesale fibre provider. Similarly, there is a chance that under the retail service quality provisions some aspects of quality are more easily controlled by the wholesaler, rather than the retailer. We plan to take this into account as we develop our regime.

7.111 It is possible that interests in quality dimensions may not be aligned between wholesale fibre service providers, retail service providers, and end-users. This could mean different stakeholders' views vary on the specifics of the quality dimensions and standards, including which quality dimensions should be regulated via different regulatory tools.

Economic consultants

7.112 We have engaged CEPA to provide advice on the quality dimensions of wholesale fibre telecommunication services. Specifically, we have asked about the scope of "quality dimensions" of fibre services, as well as relevant international experience in this area and its applicability to economic regulation in the New Zealand context.

7.113 We have asked CEPA for a written report containing this advice, which has also been shared on our website.

Q25 What are your views on CEPA's advice on the approach to setting the quality dimensions input methodology? (Report published alongside this paper)

Q26 What specific factors of the telecommunications environment do you think are relevant to setting input methodologies for quality dimensions?

Regulatory processes and rules input methodology

7.114 The final issue we are seeking views on relates to the approach and process for setting price-quality paths.

7.115 Although price-quality paths are not a key focus of this paper, it is important that the input methodologies are set in a way that enables our preferred approach to

price-quality path regulation to be implemented. We are required to determine input methodologies for regulatory processes and rules, such as the specification and definition of prices/revenues.

- 7.116 We set out some of the approaches we currently use under Part 4, and seek views on whether any of these are more or less appropriate for FFLAS.

Issue 10: Input methodologies that support the setting of price-quality paths

- 7.117 The input methodologies determined for price-quality regulation will support the setting of price-quality paths from the implementation date. There are a number of possible ways that the setting of price-quality paths for fibre could occur, and a range of approaches have been used for price-quality paths under the Commerce Act depending on the particular context.

Box 7.2: Approaches used in setting price-quality paths under the Commerce Act

Approaches used for price-quality regulation for suppliers in the electricity and gas sectors have varied.

- For default price-quality regulation, we obtain a mix of historical and forecast information relating to costs and quality. This information is obtained from disclosures by regulated suppliers and from other sources. It is used to decide if, and how, prices and quality standards should be reset for a particular regulatory period. Prices are smoothed under a CPI-X mechanism.
- For customised price-quality regulation, suppliers present us a price-quality path proposal which includes an overall justification for the proposal, a mix of historical and forecast information, and a financial model. The price-quality path information must be compliant with the relevant input methodologies. The supplier must engage a verifier to assess the information and must consult with consumers prior to submitting the proposal. The supplier may seek variations to the process or the building block input methodologies. We ultimately determine the price-quality path (which can be different to that proposed by the supplier).
- For individual price-quality regulation, Transpower presents a price-quality path proposal using previously agreed templates. The proposal includes a mix of historical and forecast information. The capex input methodology requires us to evaluate Transpower's capex proposals for inclusion in the price-quality path. We ultimately determine the price-quality path.

No input methodologies for determining quality dimensions have been specified under the Commerce Act. It is worth noting that quality standards are set when the price path is set.

- 7.118 At a high level, and consistent with the discussion in **Chapter 5** and **Chapter 6**, we expect that our approach to determining price-quality paths for fibre will involve:

- 7.118.1 setting maximum prices or revenues on an ex ante basis with respect to building blocks costs;
- 7.118.2 applying the FCM principle such that suppliers have the opportunity to earn a risk-adjusted cost of capital on allowed costs over time (ie. a normal return);
- 7.118.3 acknowledging that trade-offs exist between prices or revenues (set with respect to costs) and quality; and

7.118.4 promoting the outcomes listed in s 162, and, where relevant, workable competition for the long-term benefit of end-users of telecommunications services under s 166(2)(b).

7.119 We will need to consider certain specific matters provided for by the amended Act.

7.119.1 There is likely to be only one provider (ie, Chorus) for which a price-quality path is required to be set at the implementation date.

7.119.2 The price-quality path must specify the maximum revenues Chorus will be permitted to recover for the first regulatory period, together with a wash-up mechanism addressing any over- or under-recovery of revenues.¹⁸⁰

7.119.3 When setting price-quality paths we are required to consider whether revenues should be smoothed over one or more regulatory periods to minimise financial hardship to a fibre provider or price shocks to end-users.¹⁸¹

7.119.4 The price-quality path may include incentives to maintain or improve the quality of supply through penalties, rewards, compensation schemes or reporting.¹⁸²

7.120 We propose adopting a broadly similar approach to the setting of price-quality paths as for customised price-quality paths and individual price-quality paths under the Commerce Act. It is not necessary for all aspects of the price-quality path setting process to be specified in input methodologies, given that s 170 determinations will specify how price-quality (and information disclosure) regulation apply to regulated fibre service providers.

7.121 Our view, however, is that the following fibre input methodologies would support setting of a price-quality path:

7.121.1 input methodologies for cost of capital, asset valuation, cost allocation and taxation will specify how building block costs will be determined;

7.121.2 the input methodology for quality dimensions will inform the quality standards that are set;

7.121.3 input methodologies for “regulatory processes and rules” could specify matters such as:

¹⁸⁰ Section 194.

¹⁸¹ Section 196.

¹⁸² Section 193(3).

7.121.3.1 costs that can be passed through to prices and the circumstances in which a price-quality path can be reconsidered within a regulatory period; and

7.121.3.2 requirements to be met by suppliers and the Commission for proposing and evaluating a price-quality path for a regulatory period; and

7.121.4 an input methodology for capital expenditure projects will specify the criteria for evaluating capital expenditure proposals.¹⁸³

Q27 What views do you have on the approach or processes that should be adopted for setting price-quality paths? For example:

Q27a Should a supplier be required to present a price-quality path proposal? What role would the Commission have in evaluating the proposal?

Q27b What historical or forecast information should be required and where should this information be sourced from? Should the information be subject to customer consultation and/or independent scrutiny or other verification?

Q27c Is there a role for a forecast total expenditure (totex) approach instead of requiring building blocks to be set with reference to capital and operating expenditure?

Q28 Do you have any views on additional incentive mechanisms (such as IRIS) that would be beneficial to consider including? (Note that the scope to include any additional mechanisms may be limited, given the time constraints we are under.)

Other issues related to creating input methodologies

7.122 We invite comments any other issues related to our future input methodology development work that you wish to raise at this stage of the process.

Q29 For any additional input methodology-related issues you wish to raise, please explain:

Q29a the nature of the issue;

Q29b the likely significance of the issue, when it will be likely to arise in practice, and whom would it affect;

Q29c what further information or analysis would be required to understand the issue; and

Q29d what potential solutions can be identified to resolve the issue?

¹⁸³ Section 175(1)(d).

Attachment A – Glossary

4G	The current level of in-use mobile technology in New Zealand.
5G	The next generation of mobile technology in New Zealand.
Access regime	A set of rules that requires a regulated network provider to allow RSPs or access seekers to access its network to receive regulated services, at a price that may or may not be determined by the regulator. In markets with monopoly or natural monopoly characteristics, access regimes can facilitate access by third parties to compete in dependent markets.
Act	The Telecommunications Act 2001.
Amended Act	The Telecommunications Act, as amended by the Telecommunications (New Regulatory Framework) Amendment Bill.
ADSL	Asymmetric digital subscriber line.
Backhaul	In a telecommunications network, backhaul is the capacity between the core backbone network and the local 'edge' networks.
Bill	The Telecommunications (New Regulatory Framework) Amendment Bill.
Broadband	Broadband is a very general term that refers to the wide bandwidth, or high capacity of a connection.
Building Blocks Model, or BBM	The building blocks model is a methodology used for regulating monopoly utilities. Under BBM, a regulated supplier's allowed revenue is equal to the sum of underlying components or 'building blocks,' consisting of the return on capital, return of capital (or depreciation), operating expenditure, and various other components such as taxes and incentive amounts. The initial asset valuation is carried out and is then updated over time based on actual prudent/efficient capital expenditure and depreciation.
Cabinet	Roadside infrastructure that provides the connection point between individual end-user telecommunications connections (for example, the connections of all residents in a subdivision or set of streets) and the nearest exchange (which serves a wider area).
Capex	Capital expenditure on acquiring, maintaining or improving long-term assets such as network equipment, property or buildings.
CAPM	Capital asset pricing model.
Chorus	Chorus Limited is a provider of telecommunications infrastructure throughout New Zealand. It provides fixed line telecommunications services using both legacy copper and newer fibre technology, and is the largest supplier of fibre fixed line access services in New Zealand.
CIP	Crown Infrastructure Partners (formerly Crown Fibre Holdings).
Commission	The Commerce Commission established by s 8 of the Commerce Act 1986.
Copper	The original national fixed line telephone network is a copper network. It allows electrical currents to flow, and was designed exclusively for telephony, but is now also used for internet services. The network is owned and operated by Chorus.
CPI	Consumer Price Index.

CPP	Customised price-quality path.
Dark fibre	Passive fibre optic network infrastructure, which is sold without any optical or electronic signalling. The customer (usually a Retail Service Provider) is responsible for adding the transmission system at both ends.
Depreciation	The reduction in value of an asset over time to reflect its remaining service potential.
DFAS	Direct fibre access service.
Economic regulation	In the telecommunications context, we use this phrase to refer to regulation adopting cost-based measures to control monopoly pricing, ensuring services are of a suitable quality and to ensure access is provided to regulated infrastructure on a timely basis.
EDB	Electricity distribution business.
Exchange	An exchange is a central building which connects all the end-users' connections within a geographic area to the wider national telecommunications network.
End-user	A telecommunications service end-user is a person (or business) who is the ultimate recipient of a telecommunications service (for example, the person using a broadband internet connection), or a service that relies on a telecommunications service (for example, the user of a monitored health alarm).
FCM	Financial capital maintenance.
FFLAS	Fibre fixed line access services. This means a telecommunications service that enables access to, and interconnection with, a regulated fibre service provider's fibre network.
Fibre or fibre optic	An optical fibre is a very thin strand of glass that is used to transport information via a beam of light.
Fibre service provider	A company which provides fibre fixed line access services.
Fixed line services	Services provided over fixed line networks including copper, fibre and Hybrid fibre coaxial networks.
FPP	Final pricing principle.
FTTP	A network where the optical fibre is run all the way to the premises (as opposed to being run to a cabinet) is called a fibre-to-the-premises.
FWA	Fixed wireless access.
GPB	Gas pipeline business.
HFC	Hybrid fibre coaxial is a broadband network based on a hybrid of fibre and coaxial cable technologies.
Information disclosure	This sets out the requirements for disclosure of financial and other network-related information by regulated suppliers.
Implementation date	Is defined in the amended Act, and means the later of— (a) 1 January 2020; and (b) any date specified by the Minister in accordance with clause 7 of Part 2 of Schedule 1AA (which enables the Minister to defer the implementation date by up to 2 years if we make a written request for a deferral).

Input methodologies	These are a set of rules designed to increase regulatory predictability, whereby the regulator develops and specifies binding methodologies for determining the various inputs into price-monitoring, price-setting and other regulatory activities prior to those activities occurring.
IM merits appeal	The High Court merits appeal of the Commission's December 2010 Part 4 input methodologies.
IRIS	Incremental rolling incentive scheme. A mechanism by which suppliers can retain the benefits of efficiency gains beyond the end of a regulatory period.
Layer 1 service	A layer 1 service provides wholesale access to the physical/passive layer of a digital communications network, based on the Open Systems Interconnection (OSI) model of computer networking. The service is sold without any optical or electronic signalling and includes Unbundled Copper Local Loop.
Layer 2 service	A layer 2 service provides wholesale access to the data link layer of the OSI model of computer networking. The service includes unbundled bitstream access and Ultra-Fast Broadband bitstream services.
LFCs	Local Fibre Companies that were formed with the government's partners in the UFB initiative to deliver wholesale fibre services in certain areas. These are made up of Chorus and the other LFCs—Enable Networks, Northpower Fibre and Northpower LFC2 (together referred to as Northpower) and Ultrafast Fibre—and any such companies formed under the extension to the UFB initiative.
MAR	Maximum allowable revenue. This is a component of economic regulation whereby regulated suppliers are limited to recovering total revenues from customers up to a maximum specified amount. Suppliers would generally have discretion in how they price individual services in order to generate their maximum allowable revenue.
MBIE	Ministry of Business, Innovation and Employment.
Merits review	An appeal right whereby the appellate Court is able to review the substance of a decision as opposed to only the process or compliance with the law.
Minister	Where referred to in this document, the Minister means the Minister of Broadcasting, Communications and Digital Media, who is responsible for the administration of the Telecommunications Act 2001.
NBAP	Non-building access points, such as street lights on council road reserves.
NPV	Net present value.
NZ GAAP or GAAP	New Zealand Generally Accepted Accounting Practice.
OLT	Optical line termination/terminal.
ONT	Optical network terminal
Opex	Operating expenditure.
Part 4	Part 4 of the Commerce Act 1986, under which the Commerce Commission has a role regulating the price and quality of services in markets where there is little or no competition and little prospect of future competition (eg, energy networks and airports).
POI	Points of interconnection.
PQ	Price-quality regulation.

RAB	A regulated asset base is the value of total investment by a regulated utility in the assets which will generate revenues over time.
RBI	Rural Broadband Initiative.
Regulatory period	Refers to the length of time for which a price-quality path determination applies. Under the amended Act the first regulatory period lasts for three years, and subsequent regulatory periods must be between three and five years.
ROI	Return on investment.
RSPs	Retail service providers. RSPs provide telecommunications services to end-users.
STDs	Standard terms determinations.
TAMRP	Tax-adjusted market risk premium.
TCSD	Term credit spread differential.
TDL	Telecommunications Development Levy.
Transpower	The state-owned enterprise responsible for electric power transmission in New Zealand.
TSLRIC	Total Service Long-Run Incremental Cost is a methodology for determining regulated prices, where the prices for a regulated firm's individual services are equal to the incremental cost of providing the given services. The asset base is periodically revalued based on forward-looking replacement cost.
UBA	Unbundled Bitstream Access is a DSL-enabled service that enables access to, and interconnection with, part of Chorus' fixed Public Data Network. It provides retail service providers with a managed bitstream service from an exchange to an end-user, so that the companies do not need to manage their own copper network equipment.
UCLL	Unbundled Copper Local Loop is a layer 1 unbundled copper local loop service. It enables access to, and interconnection with, Chorus' copper local loop network. The access seeker can combine the UCLL Service with network transport services and service level functionality to deliver services to end-users.
UFB	The New Zealand government's Ultra-Fast Broadband initiative.
Unbundling	Unbundling allows an RSP to gain access to a layer 1 service on the UFB or copper network. Under physical unbundling, an RSP typically installs its own layer 2 equipment (eg, at the exchange or cabinet), so that the RSP can offer its own broadband service as opposed to using a wholesale layer 2 service. Developments in technology will potentially provide new forms of unbundling which are not necessarily as reliant on physically installing equipment.
Utility-style regulation	Regulatory regimes traditionally developed for utilities such as electricity, gas and water. These regimes usually offer tiers of possible regulation, starting with information disclosure requirements, and then more intrusive forms of regulation such as price-quality path control and/or arbitrate/negotiate regulation. Price control in utility-style regulation is usually based on BBM.
VDSL	Very-high-bit-rate digital subscriber line.
WACC	Weighted average cost of capital. This is one of the key inputs of the building blocks model of regulation. It reflects the cost of debt and the cost of equity, and the respective portion of each that is used to fund an investment.
WISPs	Wireless internet service providers.

Attachment B – Summary of consultation questions

- Q1 What changes to our process (if any) would you suggest to enhance the opportunity for you, and other stakeholders, to provide input and views to us as we develop the fibre input methodologies?
- Q2 What input methodologies (if any) could be progressed to draft or final decisions earlier to provide more certainty to stakeholders on the new fibre regulatory regime?
- Q3 What are your views on our proposed interpretation of 'end-users of telecommunications services' in s 162 and s 166(2)(b)?
- Q4 What are your views on our preliminary views on how s 162 and s 166(2)(b) interact?
- Q5 What are your views on our preliminary view on how s 173 applies when we set the input methodologies?
- Q6 What are your views on our preliminary view that a BBM approach similar to that adopted under Part 4 would best give or be likely to best give effect to the objectives in s 166?
- Q7 How relevant to the fibre input methodologies are the three key economic principles used under Part 4?
- Q8 How does the prospect of infrastructure-based and access-based competition affect the application of the three economic principles in the fibre input methodologies?
- Q9 What other economic principles should we have regard to when developing the fibre input methodologies? For example, should we include pricing efficiency as an economic principle for fibre?
- Q10 What are your views on our approach to determining the activities and/or services that fall within the scope of FFLAS (including the treatment of copper-based services, POIs, and services provided above layer 2)?
- Q11 Are there any further key implications of the scope of regulated services for the setting of input methodologies for price-quality or information disclosure regulation?
- Q12 Do you agree with our application of s 166(2)(b) in practice as illustrated in the example? Where else may s 166(2)(b) be relevant in setting input methodologies?
- Q13 What are your views on our proposal to determine only those input methodologies listed in s 175(1) by the implementation date? What additional matters should be determined as input methodologies by the implementation date?
- Q14 Which of the fibre input methodologies (if any) do you consider most appropriate for us to consider the use of a more 'principle-based' specification?

- Q15 What are your views on our proposal to use a high-level approach consistent with Part 4 for the asset valuation IM? Please note that we have not yet set out our views on the treatment of depreciation or asset revaluations.
- Q16 What are your views on our proposed approach to adopt cost as the measure of asset value for assets constructed or acquired after implementation date?
- Q17 What specific rules or approaches (if any) are needed for the treatment of particular types of assets, or to deal with practical aspects of asset valuation?
- Q18 What are your views on our interpretation and proposed application of ss 176(2) and (2AA) for the calculation of financial losses? In particular:
- Q18a What is your view on any simplifying assumptions for the allocation of common capital and operating expenditure costs that should be applied?
and
- Q18b What are your views on how the rate of return on investment and discount rate for the loss period should be calculated?
- Q19 What preference do you have regarding the two methods outlined above for reflecting the actual costs of Crown financing, and why? What other methods could be used?
- Q20 How should we consider the involvement of related parties to the funding arrangements (eg, LFC parent companies)?
- Q21 Are there other approaches to allocating costs between regulated FFLAS services and other services that could be used? Are there features of suppliers or services that require particular consideration (eg, business structure, presence of other forms of economic regulation, accounting systems etc)?
- Q22 What views do you have on whether an input methodology for allocating costs between different FFLAS services should be set for information disclosure and/or price-quality regulation?
- Q23 What is your view on our proposal to use the Part 4 and UCLL/UBA FPP approach as the starting point when determining the cost of capital input methodologies for FFLAS?
- Q24 What matters do you think will differ from the Part 4 approach, are novel for the regulated fibre sector, or will require re-estimation/a different approach? Should we re-estimate parameters that apply across sectors, such as the TAMRP?
- Q25 What are your views on CEPA's advice on the approach to setting the quality dimensions input methodology?
- Q26 What specific factors of the telecommunications environment do you think are relevant to setting input methodologies for quality dimensions?

Q27 What views do you have on the approach or processes that should be adopted for setting price-quality paths? For example:

Q27a Should a supplier be required to present a price-quality path proposal? What role would the Commission have in evaluating the proposal?

Q27b What historical or forecast information should be required and where should this information be sourced from? Should the information be subject to customer consultation and/or independent scrutiny or other verification?

Q27c Is there a role for a forecast total expenditure (totex) approach instead of requiring building blocks to be set with reference to capital and operating expenditure?

Q28 Do you have any views on additional incentive mechanisms (such as IRIS) that would be beneficial to consider including? (Note that the scope to include any additional mechanisms may be limited, given the time constraints we are under.)

Q29 For any additional input methodology-related issues you wish to raise, please explain:

Q29a the nature of the issue;

Q29b the likely significance of the issue, when it will be likely to arise in practice, and whom would it affect;

Q29c what further information or analysis would be required to understand the issue; and

Q29d what potential solutions can be identified to resolve the issue?

Attachment C – History of telecommunications regulation in New Zealand and introduction to fibre networks

- C1 This attachment contains:
- C1.1 a brief summary of the history of telecommunications regulation in New Zealand, since the Telecommunications Act was introduced in 2001; and
 - C1.2 an introduction to fibre access networks, explaining what fibre optic cable are and their main benefits over other telecommunications technologies.

History of telecommunications regulation in New Zealand

Introduction of the Telecommunications Act in 2001

- C2 The Telecommunications Act 2001 saw the introduction of sector-specific regulation for telecommunications services in New Zealand. When the Act was introduced, the largest telecommunications provider was the incumbent, Telecom, which operated vertically-integrated fixed and mobile networks. Telecom owned a legacy copper network used to supply landline telephone connections to households, as well as internet services predominantly over dial-up connections. The Telecom and Vodafone mobile networks were mainly used for voice and text messages.
- C3 At the end of 2001, the largest fixed line competitor to Telecom was TelstraClear, which had recently been formed by the merger of TelstraSaturn and Clear Communications. It offered a range of resold services and services provided over its own network assets, including the HFC network that had been built by Saturn in parts of Wellington, Kapiti and Christchurch in the 1990s.¹⁸⁴
- C4 The Act promoted competition by giving entrants access to wholesale fixed line services, and included provisions to promote competition in mobile markets.¹⁸⁵ The Act also introduced the telecommunication service obligation (**TSO**) that compensated Telecom for losses incurred in meeting certain obligations.¹⁸⁶

¹⁸⁴ The difference between HFC and FFLAS services are explained in **Chapter 2**.

¹⁸⁵ Examples of the regulated services include local and mobile number portability, the origination and termination of voice calls on a copper network, the resale of Telecom's local access and voice services, colocation which allows a mobile network operator to place equipment on another operators network sites, and national roaming which allows a mobile network operator to access the network coverage of another domestic operator's network.

¹⁸⁶ This was to compensate Telecom for losses incurred providing local residential telephone service which includes charge-free local calling. This obligation is currently provided by Spark with support from Chorus. The second, and newer, TSO dates from 2004 and is provided by Spirit International, comprising a relay service for deaf, hearing-impaired and speech-impaired people.

2006 amendments to the Act

- C5 Revisions to the Act in 2006 saw the introduction of standard terms determinations (**STDs**), which allowed us to make determinations for certain services that applied to all access providers and access seekers of that service. The introduction of STDs allowed the benefits of our access determinations, which previously only applied to the firms named in the determinations, to apply across the industry. This made it easier for smaller firms to gain access to the regulated wholesale services at the prices and terms set in our determinations.
- C6 In 2007, 2009 and 2015 we issued STDs setting the price and non-price terms on which for services Chorus (or Telecom) had to provide certain regulated services to RSPs. These services included access to unbundled copper-based services used to provide voice and broadband internet services (**ADSL** and **VDSL**), both of which had become regulated services in the 2006 revisions to the Act.

Mobile termination regulation was introduced in 2010

- C7 Revisions introduced in 2010 allowed us to set the price and terms for mobile termination access services. This led to reductions in the wholesale prices for the termination of voice and text messages on mobile networks.

2011 amendments to the Act

- C8 Further revisions were made in 2011, primarily relating to implementation of the UFB initiative. This included provisions for the structural separation of Telecom into two new companies. Chorus became a wholesale network access provider that built and operated a UFB fibre network alongside its existing copper access network. Telecom (now known as Spark) became a retailer and kept the mobile network.
- C9 Various other changes were made, including the introduction of an information disclosure regime for the fibre network and the requirement for a future regulatory review which would consider the most appropriate future regulatory framework for telecommunications. This review had to take account of the fibre investment resulting from the UFB initiative, as well as copper, wireless and other telecommunication investment.
- C10 The review was timed so that the implementation of its eventual outcomes could align with the anticipated end of UFB roll-out phase and expiry of the UFB1 contracts (which are discussed in **Chapter 1**) that were part of its interim regulatory framework. This allowed for a future regulatory framework to take effect upon termination of the regulatory mechanism that provided oversight of the UFB build phase.
- C11 In addition, 2011 saw the introduction of the telecommunications development levy (**TDL**) which is used to directly fund certain activities that benefit end-users, such as developing the rural broadband network. This replaced the previous provisions in the Act that compensated Telecom for providing a TSO service.

Introduction to fibre networks

- C12 A fibre access network is built by deploying fibre optic cables that contains strands of glass fibres inside an insulated casing which transports signals using lasers and light. The fibre optic cables and other 'passive' network assets are often known as layer 1 assets which provide 'unlit' services.¹⁸⁷ To be able to transport signals the fibre needs to be 'lit' by the addition of 'active' layer 2 assets.¹⁸⁸
- C13 Fibre optics can send signals (transmissions) over longer distances faster, and with fewer problems (eg, interference), than the copper cables that were widely deployed for telecommunications in New Zealand in the last century.
- C14 These strengths make fibre optic cables well-suited to modern telecommunications networks that are expected to transport large volumes of data quickly and reliably to meet a diverse range of end-user needs. It is expected that over time fibre will increasingly replace Chorus' existing copper network.
- C15 While fibre is often associated with modern, fast broadband services that support internet access, it is also used to support New Zealand's mobile and legacy copper access networks.¹⁸⁹
- C16 For example, fibre is often used to transport traffic between access networks (be they copper, mobile or fibre) including both traffic that is staying with the same operator and traffic that has or will be handed over to another network operator. When fibre is used in this context, it is providing a service that is not covered by the new regulatory provisions that this paper discusses.
- C17 Fibre can also be used to transport traffic to and from the individual cell sites of mobile networks.

¹⁸⁷ Layer 1 refers to layer 1 of the OSI model of network architecture. Example of layer 1 assets in a fibre network include fibre optic cable, ducts, manholes and fibre service lead ins.

¹⁸⁸ Layer 2 assets include the optical network terminal (ONT) inside the end-user premises and the optical line terminal (OLT) which is also a termination point for fibre.

¹⁸⁹ For example, fibre is typically used to transport voice and data traffic originating from the copper network between major cities, and for mobile networks from mobile towers and other cell sites back to the rest of the mobile network.

Attachment D – Members of our expert advisory panel for fibre

- D1 We have chosen to form an expert advisory panel in order to assist Commissioners with their work to develop and implement the input methodologies, price-quality path and information disclosure regulations for FFLAS.
- D2 Members of the panel may be used in a number of ways. We may ask members of the panel to provide expert advice on a specific issue. Alternatively, we may use the panel to review our own position, or provide advice on stakeholder submissions.
- D3 The expert advisory panel is not fixed, and members may be added or removed over time. Table D1 provides detail on the three members we have currently appointed to the panel.

Table D1: Members of our expert advisory panel for fibre

<u>Expert</u>	<u>Bio</u>
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 Understanding Regulation (Oxford University Press, 2012). They are currently working on a book provisionally entitled Taming the Corporation. 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 input methodologies under Part 4.</p>

Jeffrey Church	<p>Dr. Church is a professor of Economics at the University of Calgary.</p> <p>He has a Ph.D. in economics from the University of California at Berkeley and a B.A. (Honours) in Economics from the University of Calgary. He was the 1995-1996 T. D. MacDonald Chair in Industrial Economics at the Canadian Competition Bureau. His published research includes articles on merger simulation, network economics, strategic competition, entry deterrence, intellectual property rights, and competition policy. He is the co-author of a book on the regulation of natural gas pipelines in Canada, a text in industrial organization, and a monograph for the European Commission on the competitive impacts of vertical and conglomerate mergers. He has acted as an expert on regulatory and competition policy matters.</p>
Ingo Vogelslang	<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 input methodologies under Part 4.</p>