



# **New regulatory framework for fibre**

A report for Spark

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## Executive Summary

My name is Hayden Matthew Green. I am a Director of Axiom Economics and the head of its New Zealand operations.<sup>1</sup> I have been asked by Spark New Zealand (Spark) to provide an independent economic review of certain aspects of the Commerce Commission's (Commission's) proposed approach to implementing the new regulatory framework for fibre contained in Part 6 of the *Telecommunications Act 2001* (the Act).<sup>2</sup> Specifically, I have been asked if there are any key messages that the Commission should take on board as it sets about determining input methodologies (IMs) for fibre fixed line access services (FFLAS).

## Background

The Commission's experience designing and administering the Part 4 regime for regulated energy businesses and monitored airports over the past decade will serve as a useful point of reference as it sets about crafting the Part 6 arrangements. However, there are several crucial differences between FFLAS and the sectors regulated under Part 4. First, there is more potential for the Commission's decisions on IMs and price-quality paths to impact upon *actual* competition. For example, these decisions could influence:

- competition between copper and fibre services in those areas in which Chorus is not the local fibre company (LFC);
- rivalry between Vodafone's hybrid fibre coaxial (HFC) network<sup>3</sup> and Chorus' and Enable's fibre networks in Wellington and Christchurch, respectively;
- potential rivalry between wireless services (both fixed wireless access (FWA)<sup>4</sup> and mobile) and fixed line services (copper and FFLAS) – particularly if 5G networks are deployed and the boundaries of competition shift; and
- possible access-based competition from suppliers procuring layer 1 services, which could affect rivalry at both layer 1 and layer 2.

Second, there is the unique circumstance in which customers are transitioning from copper to a new fibre network, which means that during this initial period:

- the relative pricing of copper and fibre is an important consideration (and a key reason for the design and pricing of the initial anchor services);

*Decisions on IMs and price-quality paths may have significant impacts upon competition.*

*The transition from copper to fibre represents a key difference to the Part 4 regime.*

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<sup>1</sup> I have a Bachelor of Commerce with First Class Honours in Economics, a Bachelor of Commerce and a Bachelor of Laws with Honours from the University of Auckland.

<sup>2</sup> See: Commerce Commission, *New regulatory framework for fibre, Invitation to comment on our proposed approach*, 9 November 2018 (hereafter: 'New Framework Paper').

<sup>3</sup> HFC is a broadband network based on a hybrid of fibre and coaxial cable technologies. Vodafone acquired the HFC network in Wellington when it merged with TelstraClear in 2012.

<sup>4</sup> 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. For example, FWA can be used to provide broadband access to homes using wireless mobile network technology rather than fixed lines. It therefore enables the provision of broadband services in areas beyond the reach of existing fixed line networks, e.g., in remote locations.



- demand for FFLAS may be harder to predict than for, say, an electricity lines company or airport; and
- it seems relatively unlikely that under-investment in service quality would result in major supply outages, i.e., many of the fibre assets are brand new.

Third, there is a higher probability that the scope and structure of the regulatory framework will need to change in the future. For example:

*There is a high probability of future regulatory changes.*

- the revenue cap with wash-ups is only ‘locked-in’ for the first regulatory period, beyond which point it is plausible that something quite different might be applied (e.g., individual price caps); and
- if the IMs are designed to prevent Chorus from foreclosing potential competition (a key consideration) and effective rivalry ultimately emerges in some circumstances over the longer-term (e.g., in particular geographic areas), it may be appropriate to redefine the scope of regulated FFLAS at those times.

Fourth, pricing efficiency is likely to assume greater significance over time within the Part 6 regulatory framework, because:

*Pricing efficiency is a critical consideration.*

- there may be more scope for allocative efficiency gains to be made relative to, say, the gas pipeline sector, given the wider array of FFLAS and the potentially greater degree of customer responsiveness to price changes; and
- even more importantly, Chorus would have more incentives to set its prices in ways that reduce or foreclose potential infrastructure- and access-based competition if the regime provides it with sufficient flexibility to do so.

In my opinion, it will be important for the Commission to be mindful of these distinctions when developing the IMs and price-quality paths. These differences mean it should not simply import its approaches from Part 4. Although the Part 4 arrangements can be a useful ‘starting point’, it should not be the ‘end point’.

## General implications

The contextual matters set out above give rise to several principles or ‘themes’ that, in my view, permeate across many of the IMs the Commission will need to prepare. First, when the Commission is determining IMs and price/quality paths one of its paramount considerations should be ensuring that it does not unduly affect competition from potential infrastructure- and access-based rivals. To that end:

*One of the Commission’s paramount considerations should be ensuring it does not foreclose competition.*

- it should, in *principle*, be possible to arrive at IMs and price-quality paths that achieve that goal *without* compromising the objective in s.162 (i.e., the aims espoused in s.162 and 166(2)(b) are complementary); but
- in *practical* terms, whenever there is uncertainty surrounding the competing merits of different approaches the question that should be foremost in the Commission’s thinking is: “how might this affect *actual* competition?”; and
- the potential implications of its decisions on the future deployment of and competition from 5G technologies may warrant particularly careful scrutiny, given the clear interdependencies.



Second, given the importance of pricing efficiency, the Commission should avail itself of its broad power to determine IMs to prepare a methodology articulating some key pricing principles; namely:

- the Commission should set out how the maximum ‘cost-based’ prices for particular services will be defined, in expectation of having to undertake those tasks at some future point; and
- it should reiterate and expand upon the principles set out in the deeds with Crown Infrastructure Partners, such as the obligations not to discriminate between access seekers when setting prices.

*The Commission should prepare a pricing principles IM.*

In my view, this is vital, because:

- recent experience from the electricity distribution sector suggests that leaving these matters unaddressed, or subject only to very high-level principles, may cause problems down the track; and
- it is easy to imagine any uncertainty surrounding the shape of future prices having an undesirable chilling effect on investments – including in 5G technologies and in competing layer 2 infrastructure – with attendant negative effects on future potential competition.

Third, the Commission should err towards more prescriptive (as opposed to ‘principle-based’) IMs – particularly for core methodologies such as asset valuation, cost allocation, the cost of capital, and for any pricing principles; since:

- Chorus will understandably be motivated to engage in strategies to foreclose competition, which suggests it will often be preferable for the IMs to place a reasonably tight rein on its discretion to prevent it from acting on those commercial incentives (e.g., through the way in which it allocates common costs, determines prices for particular services, etc.); and
- if that prescription facilitates the emergence of effective rivalry over the longer-term (e.g., in some geographic areas), it may also assist in allowing the scope of regulated FFLAS to *adapt* at those times (e.g., if detailed cost allocation approaches are specified, there may be no ambiguity about how common costs are to be ‘reallocated’ in such scenarios).

*Prescriptive IMs are likely to be generally preferable to high-level principles.*

Fourth, there may be less cause to be concerned about the relative adverse consequences of under- versus over-investment and, consequently, weaker justification for applying a ‘WACC uplift’, because:

- under-investment is less likely to translate into major supply outages (which was the Commission’s key concern in the Part 4 process), given the relatively young age of most of the fibre assets;
- the cost of a major supply disruption is likely to be well below the \$1b-\$3b annual cost estimated by Oxera in relation to regulated energy businesses because there are potential substitutes for FFLAS, such as mobile services; and
- the rationale for a WACC uplift – or, at least, an increment of similar magnitude (i.e., to the 67<sup>th</sup> percentile of the estimated range) – therefore does not appear to be as compelling for FFLAS.

*There are likely to be fewer concerns about the relative adverse consequences of under- versus over-investment.*



In my opinion, if the Commission remains cognisant of these matters as it sets about designing and implementing the new regulations, it is more likely to deliver a robust and durable regime. Most notably, it will improve the prospects of it promoting the fundamental objectives set out in s.162 and s.166(2)(b) of the Act.

## Specific observations

*The values of 'fibre assets' will need to be adjusted before the initial fibre RABs (and revenues and prices) are set.*

The contextual factors set out in section two have specific implications for some of the key matters the Commission will need to consider that are worth special mention. First, the Commission will need to adjust the values of the 'fibre assets' (as defined by s.176) before setting the initial fibre RABs (and revenues and prices for FFLAS). Specifically:

- the Commission will need to allocate a portion of the costs of assets that are used to provide services *in addition* to FFLAS to those other services – allocations of this kind will be required for both 'new' and 'pre-December 2011' assets (as defined within s.176); and
- if the legislation permits, it may also wish to consider signalling its intention to examine the efficiency of the costs that are incurred by Chorus on the UFB build between now and the inception date if it believes that incentives to pursue cost efficiencies have been weakened by the passage of the Act.<sup>5</sup>

*Chorus will have an incentive to allocate common costs and set prices in ways that assuage competitive threats.*

Second, the closely-related concepts of cost allocation and pricing efficiency are vital within the context of the fibre regime. A great many of the costs of providing FFLAS are likely to be 'shared' across multiple services. Chorus is likely to have strong – and perfectly rational – incentives to allocate those common costs in ways that reduce or foreclose potential competition when setting prices. To that end:

- the cost allocation IM should seek to provide clear guidance about how all allocations should be done – including how Chorus should assign costs between different types of FFLAS (i.e., high-level principles are unlikely to suffice);
- although there are many potentially viable cost allocation methodologies that could be explored, one approach that should arguably be 'off the table' is the 'avoidable cost allocation methodology'; and
- as I mentioned earlier, it is imperative that the Commission uses its broad legislative discretion to set IMs to prepare a similarly prescriptive pricing principles methodology.

*Prescriptive IMs may also serve to 'future-proof' the regime.*

Finally, as I stated above, crafting these key IMs in a prescriptive way would serve the dual objectives of reducing Chorus' ability to foreclose potential competition *and* future-proofing the regime. Conversely, high-level principles have the potential to produce unwelcome uncertainty and opportunistic conduct.

<sup>5</sup> Prior to the Act being passed, Chorus did not know for certain how it was going to be regulated under the new regime, including how its fibre assets would be valued, or whether it would be subjected to, say, some form of *ex-post* prudence assessment. This uncertainty could well have provided Chorus with an incentive to minimise its build costs. However, with the passage of the new legislation, it now knows that it can include in the initial fibre RAB anything that it spends between now and 2022 (given that the Commission has been granted a two-year extension).



## 1. Introduction

Part 6 of the *Telecommunications Act 2001* (the Act) sets out a new regulatory regime for fibre. The legislation requires the Commerce Commission (Commission) to design and implement input methodologies (IMs) and price-quality paths for fibre fixed line access services (FFLAS). The Commission's 'invitation to comment'<sup>6</sup> represents the first step in this process.

I have been asked by Spark to provide an independent economic review of certain aspects of the Commission's proposed approach. Specifically, I have been asked if there are any key messages that the Commission should take on board as it sets about determining IMs. I provide those thoughts in the remainder of this report, which is structured as follows:

- in **section two** I highlight some of the key factors that distinguish this current process from the Commission's previous experience determining IMs under Part 4 of the *Commerce Act 1986* for certain energy companies and monitored airports;
- in **section three** I discuss some of the general overarching implications of these key contextual factors for the way in which I consider the Commission should go about developing its IMs and price-quality paths; and
- in **section four** I explore some of the more specific consequences for three of the most important matters that the Commission will need to examine during this process: asset valuation, cost allocation and pricing principles.

Throughout this report I do not offer any opinions on the precise form the various IMs should take. In my view, such assessments would be premature at this stage. My focus is instead on the key issues and overarching principles that I think the Commission should examine when it is making those decisions. Finally, I stress that the opinions expressed throughout this report are my own and do not necessarily reflect the views of Spark.

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<sup>6</sup> See: Commerce Commission, *New regulatory framework for fibre, Invitation to comment on our proposed approach*, 9 November 2018 (hereafter: 'New Framework Paper').



## 2. Background

The broad architecture of the new regulatory regime for FFLAS contained in Part 6 of the Act bears a strong resemblance to the arrangements contained in Part 4 of the *Commerce Act 1986* applicable to regulated energy companies and the three monitored airports. There will therefore be key learnings that can be applied from the Commission's experience designing and administering the Part 4 regime over the past decade.

Although the Commission will not be starting from 'square one', it has recognised that it cannot simply 'import the approach' it adopted under Part 4.<sup>7</sup> I agree. There are crucial differences between FFLAS and the sectors regulated under Part 4; many of which are reflected in the Act (e.g., in the revised purpose statements). It will be important for the Commission to be mindful of these distinctions when developing the IMs and price-quality paths.

### 2.1 Greater scope for competition

Throughout the design and implementation of the Part 4 regimes considerable time and effort was devoted to contemplating what it meant to promote outcomes *consistent with* those produced in workably competitive markets. This was largely a *hypothetical* exercise. The prospect of decisions in relation to, say, cost allocation IMs, having widespread impacts upon *actual* competition in *real* markets was relatively slim. That is not the case for FFLAS. In this context, the implications for *real* competition are potentially profound and of the utmost importance.

*There is scope for infrastructure-based rivalry from a variety of technologies.*

First, while there is potential for some *infrastructure*-based competition to emerge from new technologies in, say, the electricity sector,<sup>8</sup> the prospect is even greater in telecommunications markets. While Chorus clearly possesses substantial and enduring market power in those areas in which it is the provider of FFLAS, there is nevertheless the potential for 'fixed-line' competition to occur between copper and fibre services in those areas in which it is *not* the LFC.<sup>9</sup> Similarly, there is the prospect of some rivalry between Vodafone's HFC<sup>10</sup> network and Chorus' and Enable's fibre networks in Wellington and Christchurch, respectively. Perhaps even more crucially, there is the potential for the boundaries of infrastructure-based competition to shift in the future.

<sup>7</sup> New Framework Paper, p.52.

<sup>8</sup> For example, the emergence of new decentralised energy sources such as solar photovoltaic cells and battery storage is blurring the lines of the traditional 'natural monopoly' components of electricity lines businesses to some degree. This trend is likely to continue as the cost of these emerging technologies continues to fall.

<sup>9</sup> Indeed, the existence of that rivalry is the very reason why Chorus' copper services have been deregulated in those geographic locations.

<sup>10</sup> Hybrid fibre coaxial is a broadband network based on a hybrid of fibre and coaxial cable technologies. Vodafone acquired the HFC network in Wellington when it merged with TelstraClear in 2012.



Most notably, deployments of 5G mobile infrastructure may improve significantly the quality of wireless services (both FWA<sup>11</sup> and mobile), since the technology is capable of supporting much faster data speeds and higher levels of demand. Spark, Vodafone and 2degrees have all signalled their intentions to deploy 5G networks. However, investments in that infrastructure and the ultimate effectiveness of that potential source of new competition will be contingent on the way in which the FFLAS IMs are framed. As I elaborate subsequently, if the IMs provide Chorus with flexibility to act in ways that compromises competition in the wireless market (e.g., through the way it allocates common costs, sets prices, etc.), end-users could be deprived of the substantial benefits those services might otherwise deliver.

Second, there is greater possibility of *access*-based competition.<sup>12</sup> Most notably, from 1 January 2020,<sup>13</sup> Chorus will be required to supply ‘unbundled layer 1 services’ on all parts of its fibre networks on an ‘equivalence’<sup>14</sup> and ‘non-discriminatory’<sup>15</sup> basis (i.e., to offer a ‘dark fibre’ service).<sup>16</sup> Until then, retail service providers (RSPs) will have to purchase bundled ‘layer 2’ services supplied using Chorus’ own equipment. RSPs will nevertheless have *some* ability to differentiate their retail offerings to end-users during that period, for example:

*There is potential for access-based competition at layer 1.*

- an RSP might procure the cheapest, basic offering from Chorus and retail a ‘basic’ retail broadband product; and/or
- an RSP could offer a higher quality service by purchasing a higher bandwidth product, enabling faster download speeds most of the time.

The availability of an unbundled ‘dark fibre’ product will create another avenue of potential rivalry. It may boost competition at the retail level by enabling RSPs to

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<sup>11</sup> 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. For example, FWA can be used to provide broadband access to homes using wireless mobile network technology rather than fixed lines. It therefore enables the provision of broadband services in areas beyond the reach of existing fixed line networks, e.g., in remote locations.

<sup>12</sup> Note that infrastructure- and access-based competition do not exist in ‘water-tight’ compartments. There can be some overlap. For example, as I explain in more detail below, competition from wireless broadband is contingent upon those suppliers procuring access to Chorus’ ‘Direct Fibre Access Service (DFAS)’, which is part of its suite of FFLAS. In other words, access to certain bespoke parts of Chorus’ fibre network is currently required to deliver wireless voice and broadband services – which are substitutes for FFLAS for at least some market segments.

<sup>13</sup> And from 1 January 2026 in the network funded as part of the second phase of the ultra-fast broadband (UFB) deployment.

<sup>14</sup> They must offer the same input services, systems and processes to all access seekers, themselves and related parties.

<sup>15</sup> The providers are obligated not to discriminate in how they treat access seekers, related parties and themselves.

<sup>16</sup> Dark fibre comprises either a separate physical ‘unlit’ fibre or an individual wavelength, i.e., it is passive (or ‘unlit’) fibre optic network infrastructure, which is sold without any optical or electronic signalling. The customer is therefore responsible for supplying that additional functionality, i.e., its own terminating equipment. In contrast, ‘layer 2’ (or ‘lit’) fibre services are supplied with that functionality included as part of the bundle, i.e., Chorus supplies the terminating equipment, splitter and the fibre.



install transmission equipment tailored to their own specific requirements,<sup>17</sup> which could spur even greater product differentiation and innovation. The prospect for such competition – and its attendant benefits – are rightly acknowledged by the Commission in its paper:<sup>18</sup>

*‘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 (i.e., 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.’*

*Chorus will have an incentive to reduce rivalry, but its ability to do so will depend on how the IMs and price-quality paths are set.*

Unbundling of layer 1 services may also promote access competition at the *wholesale* level, i.e., ‘unbundlers’ could conceivably offer layer 2 services to other RSPs in competition with Chorus. If this type of layer 1 bundling is sufficiently widespread, it is conceivable that a time may come where it is neither necessary nor desirable to regulate the terms upon which Chorus offers its layer 2 services<sup>19</sup> – or, at least, those regulations may no longer be ubiquitous.<sup>20</sup> But again, the prospect of that competition hinges critically upon how the FFAS IMs are designed.

As I foreshadowed above, Chorus will have a natural commercial *incentive* to take advantage of its substantial market power to foreclose all these sources of potential competition if it can. Its *ability* to do so will depend crucially on the IMs and price-quality paths the Commission determines. In my view, this is perhaps the single most important difference between the circumstances that existed under Part 4 and the current context. It is therefore unsurprising that s.166(2)(b) directs the Commission explicitly to promote *actual* workable competition in telecommunications markets – a vital legislative difference.

## 2.2 Transition between technologies

Another clear difference between the Part 4 and Part 6 regimes is the state of relative flux created by the transition from copper to fibre technologies. The ultra-fast broadband (UFB) initiative is effectively replacing the entire copper network which, over time, is likely to be sequentially decommissioned. To be sure, energy companies and airports also undertake replacement expenditure, but the nature and scale of the fibre investment sets it apart. For example:

<sup>17</sup> Note that this would be the ‘fibre equivalent’ of copper local loop unbundling, i.e., whereby access seekers can purchase a UCLL and UBA services from Chorus and install their own ‘DSLAM’ infrastructure in exchange buildings, thereby obviating the need to purchase a bundled layer 2 copper service.

<sup>18</sup> New Framework Paper, p.36.

<sup>19</sup> Note that it is likely to remain appropriate to continue regulating the terms and conditions upon which Chorus supplies its layer 1 service – indeed, this will be vital.

<sup>20</sup> For example, certain geographic areas might be candidates for deregulation.



- when an electricity distribution company replaces a line, or an airport resurfaces a section of runway, the ‘new’ asset is usually reasonably comparable to the old one (e.g., concrete is concrete); and
- it would be highly unusual for, say, an electricity lines or gas pipeline business to replace almost its *entire network* in a condensed timeframe – replacements are more piecemeal.

The breadth of the replacement investments creates several important challenges that did not exist in the context of Part 4. The first is the relative pricing of copper and fibre. If the access price of the former is set too high relative to the latter then customers may be unduly deterred from migrating to fibre, and vice versa.

*The relative pricing of copper and fibre services will need to be managed.*

Parliament has endeavoured to address this symbiosis – for the near-term at least – in the following ways:<sup>21</sup>

- by defining ‘anchor services’ (including a basic fibre broadband service<sup>22</sup> and a fibre-based voice service)<sup>23</sup> that Chorus must offer at rates linked to existing UFB prices,<sup>24</sup> thereby enabling it to set appropriate copper prices;<sup>25</sup> and
- by not placing any explicit regulatory price controls on either FFLAS or copper services in those areas in which Chorus is not the LFC, thereby enabling competition to constrain pricing during the migration period.

In other words, regardless of whether Chorus is the UFB provider in a location, during the initial regulatory period it can be expected to set its copper prices based on the prevailing fibre prices for analogous services (whether set via regulation or by another LFC). However, this may become a live issue again in the longer term when the Commission revisits the specification and pricing of those FFLAS anchor products in future regulatory periods (see s.206).

*There will be more uncertainty surrounding future demand during the migration period.*

The second closely-related challenge created by the transition is the uncertainty surrounding future demand. It is likely to be far more difficult for Chorus to arrive at robust demand forecasts for its services than, say, an electricity distribution company or perhaps even an airport.<sup>26</sup> This difficulty may wane over time as fibre

<sup>21</sup> Note that in areas in which FFLAS are not available, copper services will continue to be regulated, with prices set at 2019 levels, with inflation adjustments.

<sup>22</sup> Initially, this will be a 100/20Mbps UFB broadband product.

<sup>23</sup> Note that the anchor services themselves are not specified in the Act. The speeds, technical specifications and maximum prices would be set out in regulations to be approved by the Minister. Section 206 of the Act also sets out a process by which those anchor services can be reviewed and, potentially, amended – including prior to the first regulatory period (although, a ‘cost-based price’ cannot be introduced until the second regulatory period).

<sup>24</sup> Specifically, anchor product prices (from 1 January 2020) will be set at 2019 levels then adjusted annually at the rate of inflation.

<sup>25</sup> In areas in which Chorus supplies both FFLAS and copper services, the latter will be deregulated. Chorus can therefore be expected to set its copper prices by reference to its fibre prices, i.e., the FFLAS prices would also serve to ‘anchor’ its copper prices.

<sup>26</sup> By extension, it is also likely to be more challenging for the Commission to assess the efficacy of any forecasts that Chorus does produce.



'beds in' and demand patterns become more predictable, but is likely to be particularly pronounced in the early years of the deployment.

This is presumably one of the key reasons that the Act mandates the application of an initial revenue cap (until the reset date), with wash-ups. Price caps are very difficult to implement when demand is volatile. Because the regulated business assumes 100% of the volume risks with a price cap, this creates a natural incentive to 'game' the demand forecasts by systematically understating expected volume growth. Applying a revenue cap can serve to reduce that problem.

However, even applying a revenue cap with a wash-up cannot necessarily *guarantee* that enough demand will ultimately materialise to enable Chorus to cover all the costs it incurs providing FFLAS. For example, if the FFLAS IMs are designed to prevent Chorus from foreclosing potential competition and effective rivalry ultimately emerges in some circumstances over the longer-term (e.g., in certain geographic locations), it is theoretically possible that it may never fully recoup its past costs.<sup>27</sup> The 'mature' networks (i.e., with established assets and more predictable demand) regulated under Part 4 did not face these challenges to the same extent (although the 'stranding risks' were non-zero<sup>28</sup>).

*The 'new' nature of the fibre networks may reduce concerns related to under-investment.*

Although the relatively 'new' nature of the fibre networks will create pricing and forecasting challenges not encountered previously under Part 4 (or, at least, not to the same extent), it may also serve to assuage other concerns. For example, for the foreseeable future, it seems relatively unlikely that under-investment in service quality would result in major supply outages – a key consideration under Part 4.<sup>29</sup> Indeed, there is likely to be significant spare capacity for some time, given the point in the investment cycle. This represents a potentially important point of difference, upon which I elaborate further in section 3.4.

### 2.3 Higher probability of future regulatory changes

When the Commission set its IMs for energy companies and airports under Part 4, it was cognisant of the fact that those regulatory arrangements might subsequently evolve to some degree. For example, when the Commission was setting its initial IMs, it consciously delayed introducing any 'rolling efficiency incentive regime' for energy companies. It opted instead to consider the matter at a later date, which it duly did.<sup>30</sup>

<sup>27</sup> For example, as I explore in more detail below, if a fibre area is deregulated at some future point because competition is no longer limited, it may not be appropriate for Chorus to expect to recover the costs of the assets in that area, because competitive markets will determine the return.

<sup>28</sup> See for example: Green *et al*, *Review of the use of the 75<sup>th</sup> WACC percentile, a report for Orion*, May 2014, pp.43-48.

<sup>29</sup> As I explore in more detail below, this was a central issue when the Commission examined the appropriate WACC percentile to apply to regulated energy businesses.

<sup>30</sup> For example, an 'incremental rolling incentive scheme' (or 'IRIS') is now applied to regulated energy businesses. This allows efficiency gains to be 'carried over' multiple regulatory periods.



However, with the exception of these added layers of nuance and sophistication, and some ‘tinkering around the edges’, it is reasonable to say that few were expecting the scope and nature of the regimes to change fundamentally in the ensuing years. And they have not. The coverage and design of the regimes applied to energy companies and airports under Part 4 are much the same today as when they were first introduced in December 2010.

The same cannot necessarily be said for the regulatory arrangements to be applied to FFLAS. To be sure, there is a clear logic to the general architecture of the initial arrangements – particularly the specification of anchor prices within an overall revenue cap.<sup>31</sup> The former insulates consumers against price shocks during the transition between regimes and technologies, and the latter provides some protection to Chorus against demand risks.<sup>32</sup>

*There is a high probability of potentially significant future regulatory changes.*

However, although those core aspects of the framework may well make sense for now, the design and application of the regulations applied to FFLAS in, say, five- or ten-years’ time could differ significantly. One can conceive readily of numerous potentially developments that could have a significant bearing upon the shape of the future regulatory framework. Indeed, the Act itself contemplates and makes explicit allowance for many of these. For example:

- the revenue cap with wash-ups is only ‘locked-in’ until the reset date and so, beyond that point, it is plausible that something quite different might be applied (such as individual price caps); for example, such a switch might make sense if:
  - demand became easier to forecast beyond the initial regulatory period, e.g., because the fibre customer base had started to ‘bed in’; or
  - demand was insufficient to enable Chorus to recover its revenue requirement in the initial years of the regime and the ‘unders account’ grew to a sum that could not plausibly be recovered – in which case the revenue cap would cease to constrain prices, as required by the Act; and
- if the IMs are designed to prevent Chorus from foreclosing potential competition and effective rivalry ultimately emerged in some circumstances over the longer-term (e.g., in particular geographic areas), it may be appropriate to redefine the scope of regulated FFLAS at those times.

Provided there is sufficient prescription, it should be possible to accommodate most of these developments within the existing framework without changing the IMs

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<sup>31</sup> Note that this is under the assumption that the revenue cap is formulated in a way that recognises that Chorus will continue to supply copper services during the transition between technologies. For example, as I set out in more detail subsequently, it would be inefficient - and counterintuitive - for the many assets and costs that are common to both FFLAS and copper services to be allocated solely to the former. This would assume implicitly that every one of Chorus’ copper customers had migrated to fibre – and the network had been decommissioned – even though it was still receiving revenue from those ‘legacy’ services. Put simply, it would be likely to result in Chorus over-recovering its costs.

<sup>32</sup> As I noted earlier, because the regulated business assumes 100% of the volume risks under a price cap, this creates an incentive to ‘game’ demand forecasts by systematically understating expected volume growth.



and/or price and revenue cap models (where applicable). For example, as I mentioned above (and explain further below), if the IMs are sufficiently detailed, this should serve to prevent Chorus from foreclosing potential future competition *and*, as a 'spill-over benefit', it should better-enable the scope of regulated FFLAS to *adapt* at those times, resulting in a welcome degree of 'future-proofing'.<sup>33</sup>

## 2.4 Greater focus on efficient pricing

When the Commission was designing and implementing the Part 4 regime, pricing efficiency was not one of its foremost considerations. There were several reasons for this. When it came to electricity lines services, it was the Electricity Authority (EA) that had the power to set pricing methodologies, thereby obviating the need for the Commission to do so. There was also little point in preparing a pricing IM for the three monitored airports,<sup>34</sup> since the *Airport Authorities Act 1966* explicitly allowed those businesses to set such charges as they saw fit.<sup>35</sup>

*Pricing efficiency will be a critical consideration under the FFLAS regime.*

The only occasion on which the Commission was responsible for establishing both revenue allowances *and* pricing methodologies was in relation to gas pipeline businesses (GPBs). In that instance, it opted to prepare an IM that set out a small number of high-level principles (e.g., that prices be subsidy-free and signal long-term investment costs where possible).<sup>36</sup> The Commission was reluctant to determine a prescriptive methodology for several reasons, including:<sup>37</sup>

- it saw only limited potential for allocative efficiency gains, given that the demand for most types of regulated gas pipeline services was relatively unresponsive to changes in prices;<sup>38</sup> and

<sup>33</sup> For example, greater specificity could reduce or eliminate any potential ambiguity surrounding what is to happen to the RAB, common costs, any accumulated 'unders', and so on, in these conceivable scenarios. As I explain in more detail in section 3.3, IMs containing only high-level principles are likely to be much less suitable for this purpose (i.e., they may result in uncertainty, controversy and, potentially, regulatory paralysis).

<sup>34</sup> However, as the Commission notes in its paper, it has since assessed the efficiency of the airports' prices under information disclosure, when reviewing pricing decisions from Auckland, Wellington and Christchurch Airports. See: New Framework Paper, p.83.

<sup>35</sup> Specifically, s.4A of the *Airport Authorities Act 1966* states that: '...every airport company may ... set such charges as it from time to time thinks fit for the use of the airport operated or managed by it, or the services or facilities associated therewith.' However, that pricing discretion is subject to a statutory obligation to consult with their customers in relation to charges and major capital works.

<sup>36</sup> Commerce Commission, *Input methodologies (electricity distribution and gas pipeline services): Reasons paper*, December 2010, pp.180-181.

<sup>37</sup> *Op cit.*, p.180.

<sup>38</sup> Allocative efficiency gains stem from reductions in 'inefficiently unserved demand'. For example, if prices are significantly above the underlying cost of supplying a service, this may discourage some customers from buying it when they would have been prepared to do so at a lower, more cost-reflective price. In these circumstances, reducing the price to a more cost-reflective level may reduce that inefficiently unserved demand, whilst still enabling the firms in question to make a 'normal profit'. However, the size of the potential allocative efficiency gain depends crucially on the responsiveness of customers to price changes. If customers are relatively *unresponsive* to price changes, then reducing the price may lead to only a small increase in demand and, in turn, only a modest allocative efficiency gain.



- it acknowledged that the GPBs themselves would have superior information about customer responsiveness and that putting in place systems to collect cost data could be expensive.

Moreover, the Commission did not need to be overly concerned about GPBs setting prices with a view to protecting their revenue streams from competitive threats posed by potential infrastructure- and/or access-based rivals. For those reasons, it surmised – perhaps not unreasonably – that the potential benefits from preparing a prescriptive pricing IM for GPBs would be outweighed by the attendant costs. However, as the Commission has highlighted,<sup>39</sup> that cost/benefit calculus is quite different for FFLAS.

The Commission would again face an information asymmetry. Putting in place a more prescriptive pricing IM would also entail more design and implementation costs than a high-level methodology. Those considerations would therefore remain much the same. However, weighing against those factors in this instance would be the following:

- intuitively, one would expect there to be significantly more scope for allocative efficiency gains, given the broader array of FFLAS and the potentially greater degree of customer responsiveness to price changes; and
- even more importantly, Chorus would have a far greater incentive to set its prices in ways to foreclose potential infrastructure- and access-based competition if the regime provides it with sufficient flexibility to do so.

*Prescriptive methodologies are likely to be preferable to high-level principles.*

In other words, high-level principles may be less likely to result in efficient prices in the current context. This is perhaps one of the key reasons why the regime has been designed to directly set the prices for the key anchor services and the direct fibre access service (DFAS)<sup>40</sup> during the first regulatory period (i.e., Chorus has no discretion over the pricing of these products in the initial years). I see no obvious reason why this would – or should – change beyond the first regulatory period.

It is worth noting also that the EA is also moving towards more prescriptive pricing methodologies for both electricity transmission<sup>41</sup> and distribution<sup>42</sup> businesses. The pricing guidelines that have been applied previously to distribution businesses serve as a potentially interesting case study, since they are virtually identical to the

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<sup>39</sup> New Framework Paper, p.81.

<sup>40</sup> 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

<sup>41</sup> Details of the EA's electricity transmission pricing review can be found: [here](#).

<sup>42</sup> Details of the EA's electricity distribution pricing review can be found: [here](#).



high-level principles applied by the Commission to GPBs (i.e., they specify that prices should be ‘subsidy-free’ and so on).<sup>43</sup>

In recent years, the EA has become increasingly dissatisfied with the way in which distributors have responded to the significant degree of freedom provided to them under these arrangements. In particular, it has lamented that distributor’s tariff structures do not reflect the underlying costs of providing distribution services and risk encouraging inefficient investments in emerging technologies such as solar panels and batteries.<sup>44</sup> It has also started to consider the incentives businesses may have to adversely affect competition through their pricing.<sup>45</sup>

With the emergence of new technologies such as solar technology, batteries, peer-to-peer electricity trading interfaces and digital platforms for aggregating demand, electricity lines businesses will be dealing more frequently with potential competitors. For example, a third-party might seek to contract with a distributor to help maintain network reliability using a battery.<sup>46</sup> The EA has observed that, unless access is provided upon appropriate terms and conditions, then:

- a distributor or Transpower might set connection standards or technical specifications for batteries or other equipment, or new connections that either preclude connection or favour one brand of equipment over another to favour itself or a related business; and/or
- a distributor might have an incentive to introduce discriminatory distribution charges that encourage consumers to invest in affiliated businesses, e.g., a distributor could possibly structure its charges to increase uptake of photovoltaic panels when it has a solar business.

In other words, the EA has questioned whether the existing ‘principles-based’ pricing arrangements for electricity distribution companies (and, to some extent, to Transpower) are fit for purpose – especially in the face of third parties potentially competing to provide network services. As we have seen already, these issues are likely to be *even more important* when it comes to FFLAS, where the incentives for Chorus to foreclose potential infrastructure- and access-based rivals may be even stronger. This should therefore serve as a potential cautionary tale.

## 2.5 Summary

The Commission’s experience designing and administering the Part 4 regime for regulated energy businesses and monitored airports over the past decade will serve as a useful point of reference as it sets about crafting the Part 6 arrangements.

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<sup>43</sup> In addition to being relatively non-prescriptive, the principles are voluntary and the EA therefore does not enforce compliance.

<sup>44</sup> See for example: Electricity Authority, *It’s time to reform distribution pricing* (available: [here](#)).

<sup>45</sup> Electricity Authority, *Enabling mass participation in the electricity market, How can we promote innovation and participation? Consultation paper*, 30 May 2017.

<sup>46</sup> This might then obviate the need for the distributor to invest in a ‘network solution’, i.e., upgrading existing distribution lines.



However, there are several crucial differences between FFLAS and the sectors regulated under Part 4. First, there is more potential for the Commission's decisions on IMs and price-quality paths to impact upon *actual* competition. For example, these decisions could influence:

*Decisions on IMs and price-quality paths may have significant impacts upon competition.*

- competition between copper and fibre services in those areas in which Chorus is not the local fibre company (LFC);
- rivalry between Vodafone's hybrid fibre coaxial (HFC) network<sup>47</sup> and Chorus' and Enable's fibre networks in Wellington and Christchurch, respectively;
- potential rivalry between wireless services (both fixed wireless access (FWA)<sup>48</sup> and mobile) and fixed line services (copper and FFLAS) – particularly if 5G networks are deployed and the boundaries of competition shift; and
- possible access-based competition from suppliers procuring layer 1 services, which could affect rivalry at both layer 1 and layer 2.

Second, there is the unique circumstance in which customers are transitioning from copper to a new fibre network, which means that during this initial period:

*The transition from copper to fibre represents a key difference to the Part 4 regime.*

- the relative pricing of copper and fibre is an important consideration (and a key reason for the design and pricing of the initial anchor services);
- demand for FFLAS may be harder to predict than for, say, an electricity lines company or airport (hence the reason for an initial revenue cap); and
- it seems relatively unlikely that under-investment in service quality would result in major supply outages, i.e., many of the fibre assets are brand new.

Third, there is a higher probability that the scope and structure of the regulatory framework will need to change in the future. For example:

*There is a high probability of future regulatory changes.*

- the revenue cap with wash-ups is only 'locked-in' for the first regulatory period, beyond which point it is plausible that something quite different might be applied (e.g., individual price caps); and
- if the IMs are designed to prevent Chorus from foreclosing potential competition (a key consideration) and effective rivalry ultimately emerges in some circumstances over the longer-term (e.g., in particular geographic areas), it may be appropriate to redefine the scope of regulated FFLAS at those times.

Fourth, pricing efficiency is likely to assume greater significance over time within the Part 6 regulatory framework, because:

<sup>47</sup> HFC is a broadband network based on a hybrid of fibre and coaxial cable technologies. Vodafone acquired the HFC network in Wellington when it merged with TelstraClear in 2012.

<sup>48</sup> 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. For example, FWA can be used to provide broadband access to homes using wireless mobile network technology rather than fixed lines. It therefore enables the provision of broadband services in areas beyond the reach of existing fixed line networks, e.g., in remote locations.



*Pricing efficiency  
is a critical  
consideration.*

- there may be more scope for allocative efficiency gains to be made relative to, say, the gas pipeline sector, given the wider array of FFLAS and the potentially greater degree of customer responsiveness to price changes; and
- even more importantly, Chorus would have more incentives to set its prices in ways that reduce or foreclose potential infrastructure- and access-based competition if the regime provides it with sufficient flexibility to do so.

In my opinion, it will be important for the Commission to be mindful of these distinctions when developing the IMs and price-quality paths. These differences mean it should not simply import its approaches from Part 4. Although the Part 4 arrangements can be a useful 'starting point', it should not be the 'end point'.



### 3. General implications

The matters discussed in the previous section give rise to several principles or themes that, in my view, cut across many or all the IMs that the Commission will need to prepare. I set out those general observations below before narrowing the focus in section four to some of the more specific implications for core matters such as asset valuation and cost allocation.

#### 3.1 Focus on competition

It is generally accepted that the best way to maximise economic benefits for society is through the operation of competitive markets. Effective competition between rival suppliers is an efficient means of allocating society's scarce resources and enhancing overall social welfare. The critical welfare-enhancing function of competition was recognised by the Hilmer Committee, in its landmark review of Australia's competition policy:<sup>49</sup>

*The best way to maximise economic benefits for society is through the operation of competitive markets.*

*'Efficiency is a fundamental objective of competition policy because of the role it plays in enhancing community welfare ...*

*Economic efficiency plays a vital role in enhancing community welfare because it increases the productive base of the economy, providing higher returns to producers in aggregate, and a higher real wages. Economic efficiency also helps to ensure that consumers are offered over time, new and better products and existing products at lower cost. Because it spurs innovation and invention, competition helps create new jobs and new industries...*

*The promotion of effective competition and the protection of the competitive process are generally consistent with maximising economic efficiency.'*

By virtue of its role in encouraging efficient markets, competition delivers lower prices, more choice, and more popular products to consumers. Price regulation can seek to mimic some of the outcomes of competitive markets, but it is always an imperfect surrogate. For that reason, regulatory frameworks typically attempt to foster competition whenever possible, and seek to replicate its outcomes when it is not. That philosophy appears to be reflected in the legislative purpose statements.

*Chorus will have an incentive to engage in conduct that protects its revenue streams from the forces of competition.*

Specifically, s.162 directs the Commission to promote outcomes consistent with those produced in workably competitive markets. However, s.166(2)(b) also compels the Commission to promote *actual* competition in telecommunications markets for the long-term benefit of end-users, to the extent it considers it relevant. In my opinion, the objective contained in s.166(2)(b) is likely to be a highly pertinent consideration *a great deal of the time*.

As I explained earlier, Chorus faces a variety of competition in adjacent and downstream markets, and the possibility of future competition as it expands into new markets and from potential infrastructure- and access-based rivals. It will therefore have a natural commercial incentive to engage in conduct that protects its

<sup>49</sup> Committee of Inquiry into National Competition Policy (1993), *National Competition Policy: Report by the Independent Committee of Inquiry*, August 1993, pp.3-5.



revenue streams from the threats posed by those sources of potential rivalry. However, as I have indicated on several occasions hitherto, Chorus' *ability* to act on those incentives will depend crucially on the IMs and price-quality paths the Commission ultimately determines in this process.<sup>50</sup>

From an economic perspective, s.166(2)(b) therefore seems intended to guard explicitly against the undesirable (albeit perfectly rational) financial incentives that Chorus will have to foreclose potential rivalry, thereby preserving the potential long-term benefits of competition for end-users across *all* telecommunications markets (i.e., not just for FFLAS). That said, for the most part, there is unlikely to be any obvious 'clash' between the objectives laid out in s.162 and s.166(2)(b). As the Commission has noted:<sup>51</sup>

*'... both s162 and s166(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.'*

I agree. It should, in principle, be possible to arrive at IMs and price-quality paths that are capable of promoting *both* statutory provisions. However, in practical terms, whenever there is any uncertainty surrounding the competing merits of different approaches, in my opinion, the question that should be foremost in the Commission's thinking is: "how might this affect *actual* competition across all telecommunications markets?". I therefore concur with the Commission's assessment that:<sup>52</sup>

*'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 ss162 and 166(2)(b).'*

In a similar vein, I agree with the Commission's observation that:<sup>53</sup>

*'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 should not be taken to mean that Chorus should not be afforded a reasonable opportunity to earn a normal economic return (consistent with the Commission's 'financial capital maintenance' (FCM) principle<sup>54</sup>). It should. However, that should not extend to insulating Chorus from the threats posed by competition.<sup>55</sup> In my opinion, when faced with a choice between promoting competition or providing

*The objective contained in s.166(2)(b) is there to explicitly promote competition.*

<sup>50</sup> I explore the potential implications of this for the specification of IMs in more detail in the following section.

<sup>51</sup> New Framework Paper, p.59.

<sup>52</sup> *Ibid.*

<sup>53</sup> New Framework Paper, p.77.

<sup>54</sup> New Framework Paper, p.72.

<sup>55</sup> In that regard, I note that s.176(2A) states explicitly that the provision allowing Chorus to include its initial 'financial losses' in the opening regulatory asset value is not intended to protect it from *all risk* of not fully recovering its financial losses through prices over time.



Chorus with more assured cost recovery, the Commission should design its IMs with a view to achieving the former.

To that end, the potential implications of its decisions on the deployment of and competition from 5G technologies may warrant particular careful scrutiny by the Commission. I say that because significant uncertainty exists as to the timing and location of demand for these 5G services, future commercial models, demand, and even the network ownership structures. The design of the Part 6 regime forms yet another decisive variable in that 5G investment equation that will have a significant bearing on the benefits end-users ultimately derive from those services.

The Commission's decisions in relation to key matters such as the specification of the RAB, the allocation of common costs and pricing principles will therefore determine not just the shape of FFLAS. They will also have a direct impact upon the wireless sector. As I explain in more detail below, if the IMs are clear, predictable, designed to promote competition and administered consistently, this will foster efficient investment in 5G technology (and other access infrastructure). If they are not, this may compromise investment in and competition from these technologies.

### 3.2 Matters for which IMs are determined

The Commission's preliminary proposal is to determine only those IMs listed in s.175(1) when implementing the new regime for FFLAS.<sup>56</sup> It considers that the nature of the IMs listed therein is 'sufficiently clear' and that the 'regime will be workable' once they have been determined.<sup>57</sup> For the most part, I agree with that assessment. However, there is one exception worth exploring in light of the contextual factors discussed in section two.

*The Commission does not provide a firm indication of how it intends to broach the matter of pricing principles.*

Namely, the Commission does not provide a firm indication of how it intends to broach the matter of pricing principles – if at all – when it determines its IMs. The Commission does raise the possibility of including 'pricing efficiency' as an overarching 'economic principle for fibre' (alongside three others).<sup>58</sup> This observation indicates that it is keenly aware of the importance of efficient pricing. However, it is unclear what the practical implications would be of specifying such a principle. For example:

- the Commission does not say whether it intends to prepare a *pricing principles IM* containing the applicable guidance; and
- in the absence of such an IM, it is not obvious what the legal status of a 'pricing efficiency' principle would be, or how the Commission would apply it.<sup>59</sup>

<sup>56</sup> New Framework Paper, p.93.

<sup>57</sup> *Ibid.*

<sup>58</sup> New Framework, p.83.

<sup>59</sup> For example, the other three principles the Commission identifies have relatively broad application, e.g., the FCM principle is potentially relevant to multiple IMs. However, the most obvious application of a 'pricing efficiency' principle is, naturally, to pricing. The most logical place to include those principles would consequently be *in a pricing principles IM*.



The list of matters covered by IMs in Part 4 explicitly included pricing methodologies.<sup>60</sup> The Commission has noted<sup>61</sup> that there is no equivalent provision in the list contained in s.175(1) of Part 6. However, I understand that this list is ‘non-exhaustive’ and that the Commission has the broad power to determine IMs in relation to other matter if it wishes. In my opinion, it is imperative that the Commission exercises this discretion and determines a pricing principles IM. After all, the purpose of IMs is to:<sup>62</sup>

*‘...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.’ [emphasis added]*

It is very hard to see how this overarching objective could be fulfilled *without* a pricing principles IM. If the Commission opted not to prepare such an IM or, alternatively, determined the prices for various services on an *ad hoc* basis following s.206<sup>63</sup> or s.207<sup>64</sup> reviews (i.e., at some point after the first regulatory period had elapsed), then that would represent a conspicuous hole in the regulatory tapestry. The result would be substantial *uncertainty*, for example:

- as I noted earlier, businesses are likely to be investing very large sums of money on 5G mobile networks in coming years, and so it is vital that they know the principles that will govern the determination of tariffs for key inputs such as DFAS, even if the maximum prices themselves cannot be determined by the Commission prior to a s.207 review; and
- in a similar vein, businesses contemplating acquiring layer 1 dark fibre services need to know how the prices will be set in, say, 2025 so that they can be factored into their investment plans *today*, i.e., they may be disinclined to deploy capital towards these endeavours if there is a risk that Chorus’ prices will ultimately prove uneconomic (see further discussion in section 4.3).<sup>65</sup>

*The absence of a pricing principles IM would leave a big gap in the regulatory framework.*

As I explained earlier, recent experience from the electricity distribution sector suggests that leaving these matters unaddressed, or subject only to very high-level principles, may cause subsequent problems. Indeed, it is easy to imagine any uncertainty surrounding the shape of future prices having an undesirable chilling effect on infrastructure investments – including in 5G technologies and in

<sup>60</sup> See: *Commerce Act 1986*, s.52T(b). The section also exempted the Commission from having to prepare such an IM where another industry regulator – such as the EA – already had the power to set pricing methodologies in relation to particular goods or services.

<sup>61</sup> New Framework Paper, footnote 162.

<sup>62</sup> Section 174 of the Act.

<sup>63</sup> Section 206(6) states that, after the start of the first regulatory period, the Commission may recommend (following a review) a maximum ‘cost-based price’ for a prescribed anchor service.

<sup>64</sup> Section 207 states that, 3 years after the implementation date, the Commission can recommend (following a review) a maximum ‘cost-based price’ for an unbundled fibre service or a DFAS.

<sup>65</sup> To that end, I note that it is difficult to imagine a scenario in which it would not be desirable for the Commission to determine a maximum price for layer 1 dark fibre services, given the clear potential for it to ‘cannibalise’ Chorus’ sales of level 2 services and the resulting incentives for it to engage in exclusionary pricing – even though, once again, maximum prices cannot not be determined before a s.207 review.



competing layer 2 infrastructure (e.g., terminating equipment). The attendant risks to end-users are substantial and self-evident.

In my opinion, the Commission should consequently prepare a pricing principles IM that explains how the maximum ‘cost-based’ prices for particular services will be defined, in expectation of having to undertake those tasks at some future point. It should also reiterate and expand upon some of the principles set out in the deeds with Crown Infrastructure Partners, such as the obligations not to discriminate between access seekers when setting prices.<sup>66</sup> Furthermore, given the incentives that Chorus will have to set prices in ways that foreclose potential future rivalry, it will be important for the IM to be sufficiently detailed to prevent it from acting on those motivations – a matter I explore in more detail below.

### 3.3 Level of prescription

In addition to the matters for which IMs are to be determined there is the question of their respective levels of prescription. To that end, the Commission has queried whether there might be benefits to using more ‘principle-based’ regulatory approaches in some of the IMs and in the subsequent price-quality regime. It has suggested that:<sup>67</sup>

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

I am not sure that is correct. I have described already the commercial incentives that Chorus will have to engage in conduct that protects its revenue streams from various forms of potential future rivalry. If the IMs and the price-quality paths provide it with sufficient flexibility to do so, Chorus might understandably attempt to set prices and allocate common costs in ways that hinder or foreclose any such potential competition in adjacent and downstream markets.<sup>68</sup> In my opinion, ‘principle-based’ IMs risk precipitating precisely these forms of undesirable (and perfectly explicable) conduct.

*The incentives Chorus may have to reduce competition may mean the IMs need to place a reasonably tight rein on its discretion.*

For that reason, it is likely to be preferable for the IMs to place a reasonably tight rein on Chorus’ discretion. As I explained earlier, the potential adverse effects on potential competition are likely to be significantly more profound when it comes to FFLAS than for regulated energy companies and monitored airports. This suggests that the Commission should err on the side of *more prescription, rather than less prescription* when setting key IMs such as asset valuation and cost allocation, and any pricing principles.

<sup>66</sup> In terms of sequencing, such an IM would ideally be prepared in close conjunction with the cost allocation methodology, given the clear interdependencies between the two. Indeed, the allocation of common costs between activities, regulated services, geographic areas, etc., is also of critical importance to pricing.

<sup>67</sup> New Framework Paper, pp.93-94.

<sup>68</sup> I explore these potential strategies in more detail in sections 4.2 and 4.3.



Put simply, high-level principles may compromise access-seekers' incentives to invest and, in turn, jeopardise the plethora of potential benefits that future rivalry from the likes of 5G providers may offer end-users. Conversely, if the IMs are finely detailed, clear from the inception of the regime and administered openly, transparently and consistently, then the more likely it is that efficient investment can be fostered. This greater degree of prescription may serve ultimately to benefit both Chorus *and* access seekers, because:

- Chorus would know what is going to happen under certain foreseeable conditions (e.g., how it will be required to value its assets, allocate its common costs, set its prices, etc.) and could invest on an informed basis; and
- access seekers would also have greater certainty when contemplating significant investments in infrastructure that may compete with Chorus' (e.g., next generation wireless technology).<sup>69</sup>

Conversely, if the IMs do not specify clearly in advance – or in sufficient detail – how Chorus is to value its assets, allocate costs and so on, there would be clear scope for parties to engage in undesirable conduct and for potentially paralysing uncertainty. Specifically, if the IMs are inherently vague, or the Commission is seen to be constantly altering its approach as circumstances change (which would be inevitable with only 'high-level' principles), then the investment incentives of both Chorus and access seekers alike may be compromised.

*More detailed IMs may improve certainty and allow for more effective 'future-proofing'.*

Finally, I see no inconsistency between including greater prescription in the IMs and the Commission's objective of 'future-proofing' elements of the regime. Rather, providing more detail in the IMs would be likely to *promote* that goal. Take the cost allocation IM as an example. For the reasons I set out above (and I explore in more detail in section 4.2), I consider that the IM should specify clearly how Chorus should allocate common costs to address any incentives it might otherwise have to 'load costs' onto particular services and foreclose potential rivalry. In other words, in the first instance, prescriptive IMs can assist in promoting competition.

But, in the longer-term, if effective rivalry *does* ultimately emerge in some instances (e.g., in some geographic areas), that prescription may *also* assist in allowing the scope of regulated FFLAS to *adapt* at those times. For example, it may be clear from the IM how common costs are to be 'reallocated' in certain situations, reducing future controversy and ambiguity.<sup>70</sup> Conversely, if the IM contains only high-level principles, there would be scope for Chorus to engage in opportunistic conduct, creating unwelcome uncertainty.<sup>71</sup>

<sup>69</sup> Recall that mobile competitors require access to key FFLAS, e.g., the DFAS.

<sup>70</sup> Analogous analyses can be applied to other key IMs such as asset valuation and pricing principles. For example, it is likely to make is easier to subsequently 'subtract' part of the RAB if certain services are deregulated if the relevant 'pieces' have already been specified via a prescriptive asset valuation IM. Equally, if assets previously associated with unregulated services are used subsequently to provide FFLAS it will be easier to 'add' the relevant assets to the RAB.

<sup>71</sup> For example, if the IM permitted it, Chorus might seek to reallocate all the costs that were common across its regulated FFLAS and the then deregulated activities to the former.



### 3.4 Fewer concerns about underinvestment

During its Part 4 process – and the review of the WACC percentile in particular – the Commission gave extensive consideration to the relative adverse consequences of under- versus over-investment. It was ultimately moved to adopt the 67<sup>th</sup> percentile of its estimated WACC range for regulated energy businesses due to the perceived significant potential costs to consumers of major supply outages that could result from underinvestment.

In arriving at that position, the Commission was not suggesting that there would be an ‘investment strike’ if it inadvertently set the WACC below its ‘true level’.<sup>72</sup> Rather, it recognised that other subtler avenues might have been available to regulated energy businesses to cut back on spending that may not be easily observable. For example, businesses might take actions that would not be immediately apparent to most customers or the Commission, such as:

- neglecting to replace ageing assets in a timely fashion, increasing the probability of failure;
- allowing utilisation of existing assets to increase to levels that heighten the probability of failure before investing in new capacity;
- choosing to invest in inefficiently small-scale projects to alleviate capacity constraints; and/or
- choosing to respond to constraints with inefficient operating cost solutions rather than capital expenditure solutions.

The Commission’s concern was that this might culminate in major supply failures, with severe adverse impacts upon customers. Oxera estimated the potential annual cost of severe outage events as being between \$1bn and \$3bn.<sup>73</sup> The magnitude of those potential costs, coupled with the foreseeable possibility that they might eventuate, caused the Commission to conclude that it was in consumers’ interests to pay an ‘insurance premium’ to guard against the risk of underinvestment by setting the WACC above the 50<sup>th</sup> percentile (at the 67<sup>th</sup> percentile).

*There are likely to be fewer concerns about the relative adverse consequences of under- versus over-investment.*

However, the rationale for an uplift – or, at least, for an increment of similar magnitude – does not appear to be as compelling for FFLAS. First, there is the aforementioned fact that the ‘lion’s share’ of FFLAS assets are nearly brand new. That being the case, even if a business took the actions listed above, there is less chance of it translating into major supply outages. To use a simple analogy, a car with 500,000km on its odometer is more likely to break down if its owner neglects to get it serviced than a vehicle that has travelled only 5,000km.

<sup>72</sup> Indeed, it recognised that regulatory mechanisms such as requirements to produce Asset Management Plans and the regulatory quality standards would be likely to preclude such a dramatic response. See: New Framework Paper, footnote 133.

<sup>73</sup> See: Oxera, *Input methodologies, Review of the ‘75<sup>th</sup> percentile’ approach, Prepared for the New Zealand Commerce Commission*, 23 June 2014, p.72.



Second, even if a major supply failure was to transpire, it seems unlikely that it would give rise to costs of a similar magnitude to those estimated by Oxera. For one thing, UFB services will not work in the event of a power outage<sup>74</sup> (without a backup<sup>75</sup>) and so the costs of a FFLAS outage may consequently be only a fraction of the cost of a power outage.<sup>76</sup> Moreover, as the Commission has noted,<sup>77</sup> consumers may have substitutes (albeit perhaps imperfect ones for a subset of services) in the event that FFLAS become unavailable (e.g., mobile networks).

### 3.5 Summary

The contextual matters set out above give rise to several principles or ‘themes’ that, in my view, permeate across many of the IMs the Commission will need to prepare. First, when the Commission is determining IMs and price/quality paths one of its paramount considerations should be ensuring that it does not unduly affect competition from potential infrastructure- and access-based rivals. To that end:

- it should, in *principle*, be possible to arrive at IMs and price-quality paths that achieve that goal *without* compromising the objective in s.162 (i.e., the aims espoused in s.162 and 166(2)(b) are complementary); but
- in *practical* terms, whenever there is uncertainty surrounding the competing merits of different approaches the question that should be foremost in the Commission’s thinking is: “how might this affect *actual* competition?”; and
- the potential implications of its decisions on the future deployment of and competition from 5G technologies may warrant particularly careful scrutiny, given the clear interdependencies.

*One of the Commission’s paramount considerations should be ensuring it does not foreclose competition.*

Second, given the importance of pricing efficiency, the Commission should avail itself of its broad power to determine IMs to prepare a methodology articulating some key pricing principles; namely:

- the Commission should set out how the maximum ‘cost-based’ prices for particular services will be defined, in expectation of having to undertake those tasks at some future point; and
- it should reiterate and expand upon the principles set out in the deeds with Crown Infrastructure Partners, such as the obligations not to discriminate between access seekers when setting prices.

*The Commission should prepare a pricing principles IM.*

In my view, this is vital, because:

<sup>74</sup> See for example: *Telecommunications (New Regulatory Framework) Amendment Bill, Departmental Report to the Economic Development, Science and Innovation Committee, 20 April 2018, pp.21-22.*

<sup>75</sup> It is possible to purchase a battery backup for a USB connection, but those batteries may not be affordable for some end-users.

<sup>76</sup> Namely, a power outage will result in a UFB outage (and all its attendant costs) *plus* other costs unrelated to the unavailability of fibre services. Unless there is widespread back-up for UFB services, the costs of a power outage should therefore be higher than a fibre network failure.

<sup>77</sup> New Framework Paper, p.79.



- recent experience from the electricity distribution sector suggests that leaving these matters unaddressed, or subject only to very high-level principles, may cause problems down the track; and
- it is easy to imagine any uncertainty surrounding the shape of future prices having an undesirable chilling effect on investments – including in 5G technologies and in competing layer 2 infrastructure – with attendant negative effects on future potential competition.

Third, the Commission should err towards more prescriptive (as opposed to ‘principle-based’) IMs – particularly for core methodologies such as asset valuation, cost allocation, the cost of capital, and for any pricing principles; since:

*Prescriptive IMs are likely to be generally preferable to high-level principles.*

- Chorus will understandably be motivated to engage in strategies to foreclose competition, which suggests it will often be preferable for the IMs to place a reasonably tight rein on its discretion to prevent it from acting on those commercial incentives (e.g., through the way in which it allocates common costs, determines prices for particular services, etc.); and
- if that prescription facilitates the emergence of effective rivalry over the longer-term (e.g., in some geographic areas), it may also assist in allowing the scope of regulated FFLAS to *adapt* at those times (e.g., if detailed cost allocation approaches are specified, there may be no ambiguity about how common costs are to be ‘reallocated’ in such scenarios).

Fourth, there may be less cause to be concerned about the relative adverse consequences of under- versus over-investment and, consequently, weaker justification for applying a ‘WACC uplift’, because:

*There are likely to be fewer concerns about the relative adverse consequences of under- versus over-investment.*

- under-investment is less likely to translate into major supply outages (which was the Commission’s key concern in the Part 4 process), given the relatively young age of most of the fibre assets;
- the cost of a major supply disruption is likely to be well below the \$1b-\$3b annual cost estimated by Oxera in relation to regulated energy businesses because there are potential substitutes for FFLAS, such as mobile services; and
- the rationale for a WACC uplift – or, at least, an increment of similar magnitude (i.e., to the 67<sup>th</sup> percentile of the estimated range) – therefore does not appear to be as compelling for FFLAS.

In my opinion, if the Commission remains cognisant of these matters as it sets about designing and implementing the new regulations, it is more likely to deliver a robust and durable regime. Most notably, it will improve the prospects of it promoting the fundamental objectives set out in s.162 and s.166(2)(b) of the Act.



## 4. Specific observations

The contextual factors set out in section two also have some narrower implications for some of the key matters the Commission will need to consider during this process that are worthy of special mention. In the following section, I provide some specific observations in relation to the initial asset valuation, cost allocation and pricing principles.

### 4.1 Asset valuation

Part 4 of the *Commerce Act 1986* did not provide any 'step-by-step' guidance on how to set the initial RAB values. Instead, the Commission was left with the unenviable task of determining initial asset values that would promote outcomes consistent with those observed in workably competitive markets. The arrangements set out in Part 6 seem designed to avoid some of the considerable controversy that ensued from that lack of specificity.

Specifically, s.176(1) and (2) stipulate the initial value of a fibre asset as:

- the cost incurred by a regulated fibre provider in constructing or acquiring the asset (net of capital contributions); or
- for assets owned by Chorus before 1 December 2011, as the costs recorded in the published general-purpose financial statements as of 1 December 2011; and
- each fibre provider is also treated as owning a fibre asset at the implementation date with a financial value equal to the financial losses incurred by the provider under the UFB initiative.

Furthermore, s.176(4) defines a 'fibre asset' as an asset that is:

- constructed or acquired by a regulated fibre service provider; and
- employed in the provision of fibre fixed line access services (whether or not the asset is also employed in the provision of other services).

However, although these provisions describe how the values of fibre assets are to be calculated, it does not follow that they should then be included in the initial fibre RABs (and the revenue cap and prices) without further adjustment. The Commission would first need to allocate a portion of the costs of assets that are used to provide services *in addition* to FFLAS to those other services. Allocations of this kind would be required for both 'new' and 'pre-December 2011' assets. For example:

- although a significant proportion of the costs of building the new UFB networks would be directly attributable to fibre (most notably the costs of digging the trenches), there would also be many shared assets (e.g., ducts that now contain both fibre and copper); and
- the pre-2011 fibre assets are likely to include items like feeder fibre (from exchanges out to cabinets), ducts and man-hole covers, etc., that are now being used to supply both FFLAS and legacy copper services (e.g., the UBA and UCLL products) and others.

*The Commission would need to allocate a portion of the costs of assets that are used to provide services in addition to FFLAS to those other services.*



Allowing Chorus to assign 100% of its 'fibre assets' (as defined by s.176) to the initial RAB value and to its FFLAS revenue cap (and prices) would not be consistent with the purpose statements. For example, it would be inefficient - and counterintuitive - for the many assets and costs that are common to both FFLAS and copper services to be allocated solely to the former. This would wrongly imply that all of Chorus' customers had migrated - and the copper network had been decommissioned - even though it was still receiving revenue from those 'legacy' services.

Unless a portion of the 'fibre assets' are allocated to other services when the initial fibre RABs are determined and the revenues cap is set (e.g., via the cost allocation IM), Chorus would almost certainly over-recover its costs (i.e., recoup its common costs twice or more). Such an outcome would not usually be expected in a workably competitive market. Fortunately, the Commission appears to be cognisant of this crucial interaction between the asset valuation and cost allocation methodologies. For example, it observes that:<sup>78</sup>

*'The cost allocation input methodology will set out how asset values (i.e., the RAB) and operating expenditure will be allocated between activities, businesses, access seekers, regulated services or geographic areas ...*

*... 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 revenue and prices.'* [emphasis added]

Second, if the legislation permits it (which is ultimately a legal question upon which I cannot opine), the Commission may also wish to consider signalling its intention to examine the efficiency of the costs that Chorus incurs on the UFB build between now and the inception date. Prior to the Act being passed, Chorus did not know for certain how it was going to be regulated under the new fibre regime. Most notably, it was unaware of how its fibre assets would be valued, or whether it would be subjected to, say, some form of *ex-post* prudence assessment.

*The Commission may wish to examine the efficiency of the UFB build costs incurred between now and the inception date.*

In my opinion, this uncertainty could well have provided Chorus with an incentive to minimise its build costs. However, with the passage of the new legislation, it now knows that it can include in the initial fibre RAB anything that it spends between now and 2022 (given that the Commission has now been granted a two-year extension). In *principle*, that would seem to diminish any incentive that Chorus may have had previously to pursue cost efficiencies.

However, whether there is a legitimate cause for concern may depend ultimately on practical factors such as the stringency of the oversight provided by Crown Infrastructure Partners throughout this period. It is also possible that Chorus' build costs over this window are largely 'locked-in', e.g., if they are governed primarily by existing contracts with suppliers. But if the Commission does perceive there to be a material incentive problem - and the legislation allows it - then an efficiency review of some fashion may be in order before the revenue cap is set.

<sup>78</sup> New Framework Paper, pp.33 and 95.



Finally, as I have mentioned on several occasions hitherto, in my view, crafting a prescriptive asset valuation IM would serve the dual objectives of reducing Chorus' ability to foreclose potential competition (e.g., by preventing it from 'over-allocating' assets to particular services) *and* future-proofing the regime. With regards to the latter, it will be easier to 'add'<sup>79</sup> or 'subtract'<sup>80</sup> parts of the RAB where necessary if these bespoke 'pieces' exist from the outset, e.g., if the IM requires asset allocations across layer 1 and layer 2 and, potentially across geographic areas.

## 4.2 Cost allocation

The Commission is required to prepare an IM that covers the allocation of common costs, including between activities, businesses, access seekers, regulated services and geographic areas. The Commission has proposed to determine an IM that allocates two broad categories of costs to FFLAS for the purposes of determining revenues and prices; namely:

*A great many of the costs of providing FFLAS are likely to be 'shared' across multiple services.*

- those costs that are directly attributable to FFLAS, i.e., wholly and solely associated with fibre services (100% of which will, presumably, be allocated to FFLAS); and
- those costs that are *not* directly attributable FFLAS, i.e., costs that are common (or 'shared') across other regulated and unregulated services (a proportion of which will, seemingly, be allocated to FFLAS).

The Commission has also queried whether the IM should also specify the manner in which costs should be allocated across *the different types of FFLAS* that are provided. Figure 4.1 below provides an illustration. The 'cost stack' on the far left represents the aggregate cost of supplying *all* services, which is then sequentially narrowed down to the cost of supplying a *single* fibre service.<sup>81</sup>

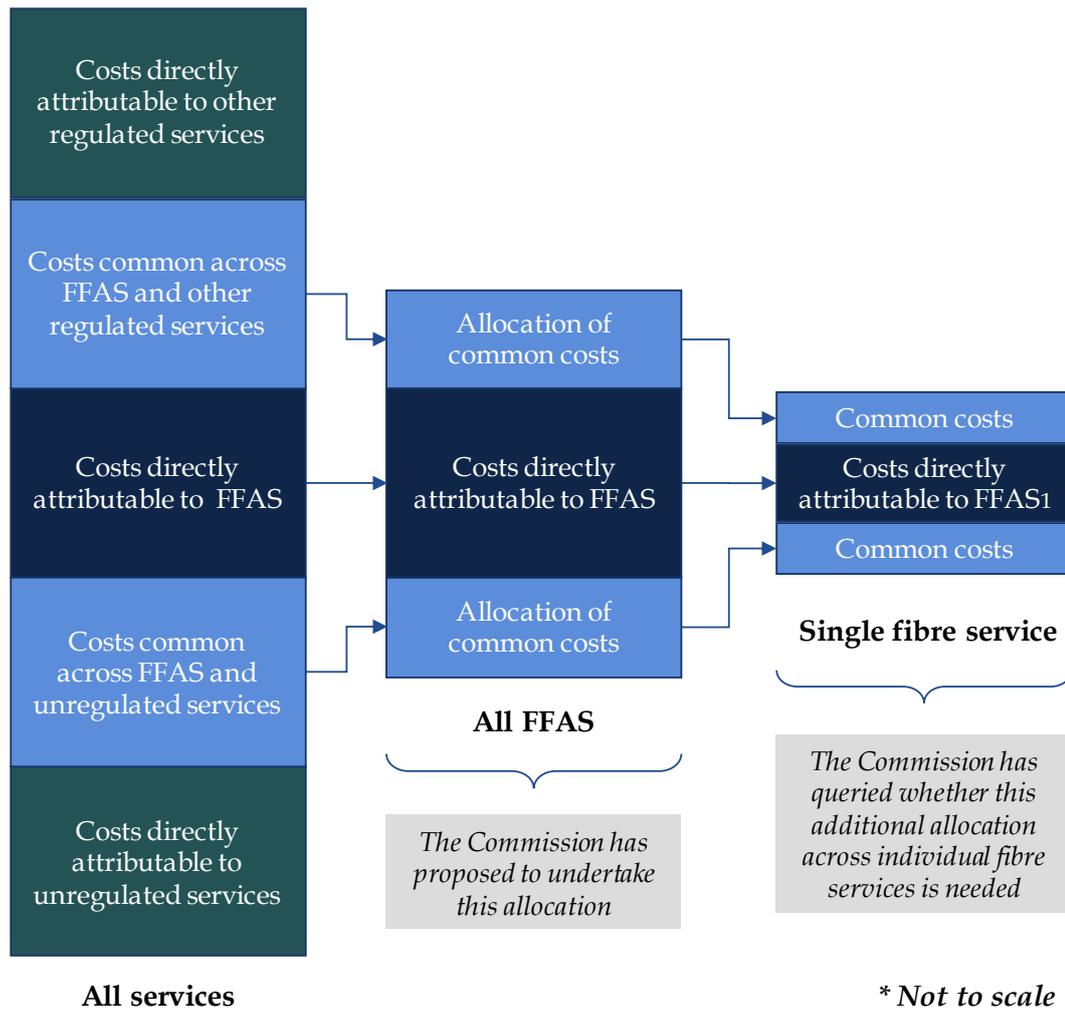
<sup>79</sup> For example, if assets previously associated with unregulated services are used subsequently to provide regulated services must be brought into the RAB.

<sup>80</sup> For example, if certain FFLAS are deregulated in certain circumstances (e.g., in particular geographic locations), necessitating the removal of certain assets from the RAB.

<sup>81</sup> Of course, there would be multiple fibre services which, in aggregate, would 'sum' to the aggregate cost of all FFLAS, i.e., the 'middle' stack in Figure 4.1.



**Figure 4.1: Allocation of common costs**



In my opinion, the cost allocation IM is vital. A great many of the costs of providing FFLAS are likely to be ‘shared’ across multiple services (i.e., the ‘light blue boxes’ in Figure 4.1 are likely to be rather large). And, even more importantly, as I foreshadowed earlier, Chorus is likely to have strong – and perfectly rational – commercial incentive to allocate those common costs in ways that assuage competitive threats. For example, it may have an understandable inclination to:

*Chorus will have an incentive to allocate those common costs in ways that reduce competitive threats.*

- allocate 100% of the costs (and assets) that are common across its fibre and copper networks to the former, thereby potentially enabling it to recover those imposts from both sets of customers (i.e., to ‘double-dip’);
- assign a disproportionate quantum of common costs to fibre services that serve as key inputs into mobile broadband and voice services, thereby reducing the attractiveness of those potential substitutes to its own FFLAS (see Box 4.1); and
- allocate a disproportionate quantum of the costs common to layer 1 and layer 2 services to the former, thereby reducing the incentives of potential access-based competitors to procure unbundled dark fibre services (see Box 5.1).

This serves to highlight several of the general points I laid out in the previous section. Most notably, the Commission should be acutely aware of the potential impacts upon potential competition when it determines its cost allocation IM (see



the example in Box 4.1). Furthermore, it speaks to the need for the IM to contain sufficient prescription to prevent Chorus from acting upon any such inclinations, i.e., high-level principles are unlikely to suffice.

#### **Box 4.1: Potential effect of cost allocation on competition**

##### **The Direct Fibre Access Service**

Suppose a customer is weighing up whether to buy either fixed line broadband in a Chorus network area or wireless broadband. These options would involve different infrastructure for the 'initial' part of the journey (i.e., before the transmission/backhaul leg):

- the first would use the local fibre network owned by Chorus - and so it would earn regulated wholesale fibre network revenues for that service under the Part 6 arrangements; and
- the second would use the RSP's mobile masts, *but* it may also use certain parts of Chorus' fibre network to get calls/data to the edge of the RSP's backhaul network.

Critically, insofar as the second option is concerned, if the RSP does not own fibre linking the relevant mobile sites to its transmission network, it will need to use Chorus' fibre network to 'plug those gaps' (to put it colloquially). Specifically, it will need to buy a direct fibre access service (DFAS).

The price Chorus charges for DFAS will therefore influence the price that one of its intermodal competitors can charge for competing wireless services (which compete with fixed line services). The price of the DFAS will be fixed at 2019 levels for the first regulatory period (in real terms). However, the cost allocation IM will still need to consider how the costs that are common across the DFAS and other FFLAS are allocated.

This allocation of costs will prove highly relevant if the Commission elects subsequently to determine a 'cost-based' price for the DFAS. For example, if *more* common costs are allocated to the DFAS and this then flows through to any 'cost-based' price, this will reduce the competitiveness of mobile broadband services relative to fixed line services. Put simply, it would involve increasing the cost of an essential input.

*The IM should be relatively prescriptive and also cover the allocation of costs between different types of FFLAS.*

Consequently, in my opinion, the IM *should* cover the allocation of costs between different types of FFLAS. Moreover, the IM as a whole should seek to provide clear directions about how all allocations should be done. There are undoubtedly many different ways in which common costs might be assigned that could warrant consideration (e.g., based on an analysis of routing factors, an analysis of how many fibre strands are being used by services, based on connection numbers, etc.). However, two key things are worth noting at this preliminary stage.

First, while there may be many candidate methodologies, one approach that should be 'off the table' is the 'avoidable cost allocation methodology'. As the Commission will be aware, this approach would result in all costs that are not directly attributable being allocated fully to FFLAS. For example, if a cost was common between copper and fibre, it would be allocated solely to the latter. As I have explained already, that would be inappropriate, since:



*Chorus should not be able to use an avoidable cost allocation methodology.*

- it would assume implicitly that every one of Chorus' copper customers had migrated to fibre – and the network had been decommissioned – even though it was still receiving revenue from those legacy services, i.e., it would be likely to result in Chorus over-recovering its costs;<sup>82</sup> and
- as the experts advising regulated energy businesses and monitored airports throughout the Part 4 process agreed unanimously; firms in workably competitive markets would expect to recover some portion of their common costs from *all* services in the long term.<sup>83</sup>

Second, the objective of 'future-proofing' the regime would, once again, be best served by a more prescriptive IM. As I noted earlier, significant potential future uncertainty and controversy could be avoided if the IM articulates clearly up-front how common costs are to be allocated. For example, suppose the IM is silent on such matters and a FFAS is deregulated in, say, a particular geographic location at some future point. Chorus would then have an obvious financial incentive to reallocate 100% of the costs that are common to the newly deregulated services to those FFLAS for which regulation continued to apply. In my opinion, the methodology should be designed so as to preclude such possibilities.

*The goal of future-proofing the regime would again be best served by a more prescriptive IM.*

It may also be beneficial for the Commission to specify an allocation methodology that enabled Chorus to recover an increasing proportion of the costs that are common across copper and fibre services from the latter as the migration progresses. For example, an allocation based on customer numbers, routing factors, etc., might facilitate this outcome. Conversely, high-level principles have the potential to produce unwelcome uncertainty and opportunistic conduct.

### 4.3 Pricing principles

I explained in sections 2.4 and 3.2 why pricing principles are likely to be even more important in the context FFLAS than they were for regulated energy businesses and monitored airports. The key messages here are the same as those set out in the previous section: namely, the way Chorus sets its prices for key FFLAS can have a significant impact upon potential competition across multiple telecommunications markets and, as a consequence, greater prescription is likely to be needed. The ancillary 'future-proofing' benefits that can be delivered through greater prescription also remain equally applicable.

*Chorus can affect competition by the way it prices its FFLAS.*

There is a particularly broad overlap between the observations I made in relation to the way in which Chorus allocates common costs to bespoke FFLAS (such as DFAS) and the overarching pricing principles. Indeed, these each ultimately go to the issue of how prices should be set for those services – 'cost-based' or otherwise. As I mentioned earlier, this is a critical matter, given the large stock of potential future investments that may be influenced by that pricing, including 5G deployments.

<sup>82</sup> Specifically, it would be likely to result in Chorus recovering a sum that is greater than the total 'cost stack' located at the far left of Figure 4.1.

<sup>83</sup> Commerce Commission, *Input Methodologies (EDBs & GPBs) Reasons Paper*, 22 December 2010, p.68.



I described above how Chorus might conceivably affect competition by the way it prices its inputs, e.g., through the way in which it allocates common costs. The pricing of the DFAS was offered as a potential example (see Box 4.1). A similar ‘foreclosure’ scenario could arise with respect to the relative pricing of layer 1 and layer 2 services post-2020. This case study and the potential adverse effects on competition warrant special mention and are set out in Box 5.1.

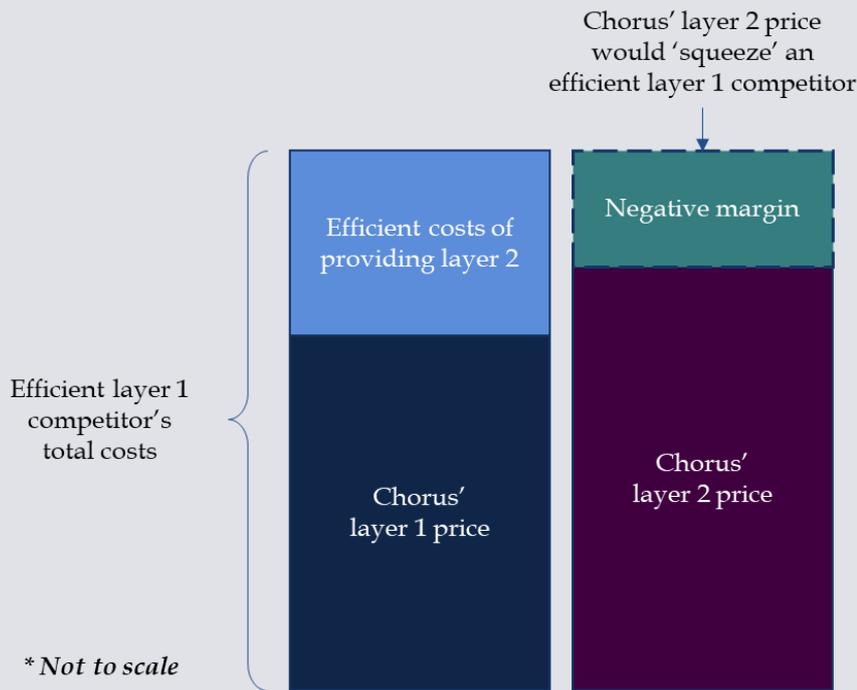
**Box 4.2: Potential effect of pricing principles on competition**

**Layer 1 vs. layer 2 ‘price squeeze’**

From 1 January 2020, Chorus will be required to supply ‘unbundled layer 1 services’ on all parts of its fibre networks on an ‘equivalence’ and ‘non-discriminatory’ basis, i.e., to offer a ‘dark fibre’ service. Sales of layer 1 services will cannibalise Chorus’ layer 2 services and pose a potentially significant competitive threat at the wholesale level.

This may provide Chorus with a commercial incentive to discourage customers from purchasing layer 1 services. Specifically, if the regulations allow it, Chorus might attempt to set its tariffs so that there is insufficient margin between the layer 1 and layer 2 prices for an RSP to procure the former from Chorus and incur the necessary incremental costs to provide the equivalent layer 2 service itself. The figure below illustrates.

*Chorus may have an incentive to ‘squeeze’ prospective layer 1 competitors.*



This is the ‘layer 1 vs. layer 2’ equivalent of the more familiar ‘retail vs. wholesale’ price squeeze. The ‘classic’ retail/wholesale price squeeze involves a vertically integrated provider setting its retail price at a level that prevents an efficient rival procuring a wholesale product from being able to compete. The principle here is exactly the same and of equal concern.

There are no controls over what Chorus can charge for layer 1 services in the initial regulatory period. In my opinion, that is curious, considering the incentives that



Chorus is likely to have to discourage uptake of the service. Indeed, it seems inconsistent to compel Chorus to provide the service – presumably in recognition of the fact that it might otherwise refuse to do so – but to then place no clear restrictions on what it can charge for it.

It is possible that Parliament anticipated that conduct of the type described in Box 5.1 can be dealt with adequately by s.36 of the *Commerce Act 1986*.<sup>84</sup> Even if this provision could serve that purpose to some extent (which, in my view, is far from clear), it does not follow that the Commission should not turn its mind to the matter when determining IMs. That is because:

*Section 36 of the Commerce Act 1986 may not be an effective tool for addressing such concerns.*

- it is conceivable that Chorus could set prices in a way that did not violate s.36 of the *Commerce Act 1986*, but also did not promote the purpose statements set out in s.162 and s.166(2)(b);<sup>85</sup> and
- in any event, it is likely to be preferable to specify some principles up-front than to rely on a costly and protracted litigation process to address any problems that arise subsequently (i.e., prevention is better than cure).

This serves to reinforce the conclusion I reached in section 3.2; namely, that the Commission should avail itself of its broad power to determine IMs to prepare a methodology articulating some key pricing principles. Specifically, it should set out how the maximum ‘cost-based’ prices for services like the unbundled fibre service and the DFAS will be defined, in expectation of having to undertake those tasks at some future point. It should also reiterate and expand upon the principles set out in the deeds with Crown Infrastructure Partners, such as the obligations not to discriminate between access seekers when setting prices.

## 4.4 Summary

The contextual factors set out in section two have specific implications for some of the key matters the Commission will need to consider that are worth special mention. First, the Commission will need to adjust the values of the ‘fibre assets’ (as defined by s.176) before setting the initial fibre RABs (and revenues and prices for FFLAS). Specifically:

*The values of ‘fibre assets’ will need to be adjusted before the initial fibre RABs (and revenues and prices) are set.*

- the Commission will need to allocate a portion of the costs of assets that are used to provide services *in addition* to FFLAS to those other services – allocations of this kind will be required for both ‘new’ and ‘pre-December 2011’ assets (as defined within s.176); and
- if the legislation permits, it may also wish to consider signalling its intention to examine the efficiency of the costs that are incurred by Chorus on the UFB build

<sup>84</sup> Section 36 has the objective of preventing firms from using substantial market power for the purpose of harming their competitors.

<sup>85</sup> A section 36 proceeding would need to consider myriad complex matters, such as the relevant market (or markets) and how to measure the efficient costs of providing layer 2 services. The latter is likely to be particularly challenging, since it might require the court to arrive at a view regarding whether it is Chorus’ own costs that are the relevant benchmark, or a (potentially hypothetical) competitor’s and, in the case of the latter, the assumed efficiency of that rival.



between now and the inception date if it believes that incentives to pursue cost efficiencies have been weakened by the passage of the Act.

*Chorus will have an incentive to allocate common costs and set prices in ways that assuage competitive threats.*

Second, the closely-related concepts of cost allocation and pricing efficiency are vital within the context of the fibre regime. A great many of the costs of providing FFLAS are likely to be 'shared' across multiple services. Chorus is likely to have strong – and perfectly rational – incentives to allocate those common costs in ways that reduce or foreclose potential competition when setting prices. To that end:

- the cost allocation IM should seek to provide clear guidance about how all allocations should be done – including how Chorus should assign costs between different types of FFLAS (i.e., high-level principles are unlikely to suffice);
- although there are many potentially viable cost allocation methodologies that could be explored, one approach that should arguably be 'off the table' is the 'avoidable cost allocation methodology'; and
- as I mentioned earlier, it is imperative that the Commission uses its broad legislative discretion to set IMs to prepare a similarly prescriptive pricing principles methodology.

*Prescriptive IMs may also serve to 'future-proof' the regime.*

Finally, as I stated above, crafting these key IMs in a prescriptive way would serve the dual objectives of reducing Chorus' ability to foreclose potential competition *and* future-proofing the regime. Conversely, high-level principles have the potential to produce unwelcome uncertainty and opportunistic conduct.