



Reasonable grounds analysis



Prepared for Chorus | 23 September 2024



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1 Introduction and overview

1.1 Background

In August 2024, the Commerce Commission (**Commission**) released a draft decision that there were no reasonable grounds to start a deregulation review of one or more fibre fixed line access services (**FFLAS**) under section 210 of the Telecommunications Act (**the Act**).¹

Since 1 January 2022, providers of regulated FFLAS have been subject to regulation under Part 6 of the Act. Chorus Limited (**Chorus**) is a provider of regulated FFLAS that is subject to PQ regulation under Part 6 of the Act. The draft decision covers the following FFLAS:

- Voice services,
- Bitstream PON services,
- Unbundled PON services,
- Point-to-point services,
- Transport services,
- Co-location and interconnected services, and
- Connection services.

1.1.1 Key requirements of the Act

Section 210 of the Act sets out that the Commission may, at any time after the implementation date, review how one or more FFLAS are regulated under Part 6 if the Commission has reasonable grounds to consider that those services should no longer be:

- regulated under Part 6 of the Act; or
- subjected to price-quality (PQ) regulation under Part 6 of the Act.

Section 210 (4) states that a review may consider the following:

- (a) whether competition to 1 or more fibre fixed line access services has increased or decreased in a relevant market;
- (b) the impact of any increase or decrease on the ability of regulated fibre service providers to exercise substantial market power;
- (c) whether the purpose of this Part would be better met if 1 or more fibre fixed line access services—
 - (i) were no longer regulated under this Part; or
 - (ii) were no longer subject to price-quality regulation under this Part.

The Commission's draft decision further sets out legal and economic frameworks for its assessment.

¹ Commerce Commission, *Fibre fixed line access service deregulation review under section 210 of the Telecommunications Act: Reasonable grounds assessment draft decision*, 27 August 2024.



1.2 Chorus's request

Chorus has asked Frontier Economics for its opinion in relation to whether the Commission:

- has used an appropriate economic framework for its FFLAS reasonable grounds review
- has taken sufficient account of the key economic characteristics of the markets in which regulated FFLAS are supplied in New Zealand, with an emphasis on the market or markets in which Chorus supplies these services.

1.3 Overview of our opinions

The economic framework developed by the Commission follows many normal conventions to examine competition in a market, in that the Commission seeks to define relevant markets (via steps 1 and 2 of its framework) and then to assess the degree of market power held in that market by suppliers of FFLAS.

The Commission's ultimate findings with respect to the key FFLAS service², Bitstream PON, are that while the wholesale supply of such services is constrained by the retail supply of alternatives such as fixed wireless access (FWA), there is little competitive constraint on the ability of regulated providers to exercise significant market power (SMP) in relation to Bitstream PON services.

In our opinion, the Commission's analysis attaches insufficient weight to many of the regulatory and market characteristics that make the exercise of any market power difficult or impossible. Some of these key characteristics include:

- Regulatory and commercial constraints that prevent Chorus from price discriminating between customers or geographic areas where Chorus might face more or less competition.
- The 'long tail' of relatively low use customers for bitstream PON services, who can be readily targeted by FWA competitors that also sell Chorus's fibre services.
- Low switching costs and barriers to expansion for key FWA competitors, particularly once regard is had to 5G deployments and the ability of FWA competitors to scale services using a combination of more infrastructure, more spectrum and greater spectral efficiency.
- The probable presence of a chain of substitution between areas of greater competition, such as relatively lower usage/speed services, and higher usage/speed services offered by Chorus.

The combination of these factors means that, in our view, there must be serious doubt that attempts by Chorus to selectively or generally raise prices above present levels would be successful – indicative of a strong degree of competitive constraint. We present some preliminary quantitative analysis using standard techniques that highlights that a greater focus on competition at the margin is warranted, and suggests that far less substitution is required to constrain pricing than the broad-brush approach to competition indicates. We therefore believe that the Commission's decision that no reasonable grounds exist is not well founded.

² By this we mean that this is Chorus's largest source of revenue.



2 Competitive constraints, market definition and substantial market power

2.1 Assessment framework

Chapter 2 of the Commission's draft decision sets out its assessment framework. The Commission finds that:

2.14 We consider the Commission may start a review of FFLAS where the information before us is objectively sufficient to leave us with a view that it is likely that the services should no longer be regulated (or should not be regulated by PQ regulation, as the case may be) in order to promote the purpose in section 162 and, where relevant, workable competition under section 166(2)(b).

The threshold adopted is that:

2.15.4. Deregulation must be a sufficiently likely outcome to justify the considerable expense and uncertainty that will accompany a review.

The Commission then sets out the economic framework for its assessment. The framework is a competition assessment and a test of the ability of regulated providers to exercise significant market power (2.50). A final step, "testing alignment with the purpose of the regulation" appears to provide discretion for an overall assessment of the available information, and includes whether any competitive constraints identified are dependent on access to regulated FFLAS.

In our view, the basic approach of testing for reasonable grounds by assessing whether there is sufficient competitive constraint on suppliers of FFLAS is unobjectionable. Competitive constraint implies that economic regulation of prices and revenues is unnecessary.

The Commission combines two steps into its 'market definition' – the description of services and the identification of alternatives. The Commission identifies – correctly in our view - that it should consider both direct and indirect competitive constraints – because FFLAS is a wholesale product supplied in a wholesale market that is an input into a retail product and retail market.

2.2 Market definition

The Commission finds that competition can be analysed in a single product market for retail broadband that includes alternative technologies (FWA, HFC and LEO / GEO satellites) that is provided over the geographic footprint of the network. The Commission's main reasons for doing so include that:

- Bitstream PON is a wholesale input into a retail broadband service (derived demand)
- Competitive conditions are not obviously dissimilar across network areas, indicating a geographic market coincident with the network roll out.

In our view, analysis of markets, substitution and competition can only effectively be considered within the context of a particular question. The question here is what is the market or markets that best allow the analysis of substitutes to establish the substantiality of FFLAS suppliers' market power.



While this approach is somewhat evident in the Commission's economic framework, it is apparent that taking a broad view of markets omits some important features of how the retail broadband market works in practice. In particular, a broad product market definition glosses over the different competitive conditions that exist for lower-end and higher-end services, and omit consideration of whether services may be connected by a chain of substitution.

The weakness in the Commission's approach is evidenced in the annex where it considers the possibility of a lower speed market. While the Commission appears to accept this market (or market segment) is effectively competitive, it provides no consideration of higher speed services.

We think that the Commission's approach could have benefited from consideration of standard techniques of market definition, such as the SSNIP or 'hypothetical monopolist' test. The SSNIP test can provide a quantitative answer to the question of substitution, by effectively asking: is this putative market something worth monopolising? That is, could price rises for a product from the competitive level be sustained and monopoly profits earned?

As the Commission's merger guidelines note:

In general, the smallest set of products (or locations) in which the SSNIP can be profitably sustained is defined as the relevant product (geographic) market. Using the product market dimension as an example, we apply the hypothetical monopolist test by starting with the narrowest possible market in which the merged firm would supply at least one product...If the hypothetical monopolist would be able to profitably increase the price of at least one of the products supplied by the merged firm by a SSNIP, then this is in general the relevant market....If the hypothetical monopolist could not profitably impose a SSNIP because customers would switch sufficient purchases to alternative products, then we widen the market to include the next best substitute and reapply the test. We repeat this process until it would be profitable for the hypothetical monopolist to impose a SSNIP.³

We accept that adopting this approach may not change the Commission's conclusions. We also note that, in our experience, it is rarely helpful to argue too hard about market definition. It is clearly challenging to determine whether there is one market for retail broadband services, or several markets differentiated by speed or other quality dimensions. The key element of any analysis is – whether markets are defined broadly or narrowly – to ensure that all relevant competitive constraints are accounted for. As we will discuss, we think that the Commission's approach in the draft decision has led it to (i) not identify all relevant factors in its competitive analysis and (ii) omit consideration of the competitive linkages between different service speeds.

2.3 Competitive analysis and identification of market power

2.3.1 The Commission's framework and analysis

The extent to which alternative services, and associated networks, represent a competitive constraint on FFLAS will depend on a number of factors:

- Whether alternatives rely on regulated FFLAS
- The market structure
- The extent to which identified alternatives represent (sufficiently) close substitutes to regulated FFLAS including their availability and performance (the same applies for alternatives in downstream markets constraining services using FFLAS)

³ Commerce Commission, *Mergers and Acquisitions Guidelines*, May 2022, at 3.20.



- Actual demand and switching behaviour by access seekers (RSPs and end-users).

We agree that these are relevant features of the market that affect competition. However, we think there are several other relevant features that determine competitive constraints on Chorus. We discuss these in Section 3.

2.3.2 A more direct approach to examination of constraints can be attempted

The Commission does not specify the degree of constraint that it is looking for to decide that Chorus or other FFLAS suppliers lack substantial market power. In our view, the degree of constraint necessary could be approached more directly by considering whether, if Chorus was to increase its prices, what would be likely to happen?

The approach that we have in mind is effectively an application of the SSNIP or hypothetical monopolist test:

- We consider customer/end users reactions to a small but significant, non-transitory price rise from the competitive price by a putative monopolist (in this case, Chorus, as the only supplier of FFLAS or certain types of FFLAS in certain geographic areas)
- We estimate whether the 'actual loss' of customers from a price rise as a result of substitution to other retail services would exceed the 'critical loss' of customers that would result in reduced wholesale profits.
- If the expected actual loss exceeds the critical loss, then we find the putative monopolist could not enduringly raise prices as it is subject to competitive constraint.

This approach can be applied to different products to determine the strength of constraints across the FFLAS services.

The principal insight from this kind of 'critical loss' analysis is that a relatively small number of customers willing to use alternative sources of supply will be sufficient to protect all customers from the exercise of market power. The result holds so long as customers likely to switch to alternative sources cannot readily be the target of price discrimination by Chorus – which, as we will highlight in section 3, is made very difficult by a combination of regulatory and commercial constraints. Moreover, the critical loss analysis also allows consideration of the existence of a chain of substitution between lower-speed and higher speed services.

For a critical loss analysis to produce accurate results, we have to assume that prices currently do not demonstrate evidence of exercise of market power, or monopoly rent. That is because an unconstrained monopolist would price to an elastic point on its demand curve, and so we would always expect some substitution from additional price rises. However, we think that an assumption of competitive prices would be reasonable as:

- Chorus is already pricing below the price caps set for anchor products⁴ and recovered less than its revenue cap for 2022 and 2023⁵, and
- the primary concern of the Commission should be whether Chorus *could raise prices from current levels in the absence of PQ regulation*.

⁴ Confirmation of Anchor Services and linked services final price changes from 1 October 2023, available at: <https://sp.chorus.co.nz/product-update/confirmation-anchor-services-and-linked-services-final-price-changes-1-october-2023>

⁵ Information Disclosure Update, 31 May 2024, available at: https://assets.ctfassets.net/7urik9yedtdqc/nzx-doc-419987/397de8ee74ccb92eb8b7283a7d29c554/Chorus_ID_pack_-_31_May_2024.pdf



3 Market features relevant to competitive constraint for Bitstream PON

3.1 Commission draft findings

As we have identified, the Commission analyses competition for Bitstream PON in the context of a single product market for retail broadband that includes alternative technologies (FWA, HFC and LEO / GEO satellites) that are provided over the geographic footprint of the network.

The Commission's analysis of competitive constraints for Bitstream PON services focuses on market structure, whether alternatives are close substitutes, and consumer demand and switching behaviour.⁶ These are valid criteria. However, there are several other market features that increase constraints on Chorus (and other FFLAS suppliers). In this section, we discuss the significance of:

- product differentiation
- inability to price discriminate
- horizontal integration by key customers
- switching costs
- limited barriers to entry and expansion.

3.2 Products are differentiated to address varying consumer demands

There is a wide variety of FFLAS products and retail products using FFLAS as inputs. The reason for this variety in products (product differentiation) is that:

- (i) Consumers have a variety of uses and demand for broadband, and will trade off price and quality characteristics. Some consumers will prefer a lower-priced service with lower speeds, and others want the fastest and highest quality available and will be prepared to pay for it.
- (ii) Such varieties are not very expensive for suppliers to produce, with the same core infrastructure able to be employed.
- (iii) Pricing schedules that respond to differences in demands and with end-users sensitive to both access and speed charges will be both profit-maximising and efficient. That is because such pricing will maximise the number of end-users that are using the service, and so increase the firm's ability to recover its costs.

We should not be surprised that suppliers will fill the market with different product variations to best meet consumer preferences. The challenge for Chorus is to ensure that RSPs and ultimately their end users to 'self-select' a plan that best suits their preferences given their willingness-to-pay for product characteristics. If RSPs/end-users select plans that are not reflective of their willingness to pay, then Chorus can end up being constrained in what it can charge.

⁶ Draft decision at 3.73.



To take a simple example, suppose Chorus simply divided its revenue requirement by its estimate of current connections. This would produce a price of around \$49 per customer per month. Setting such a price would likely reduce Chorus's profits, because Chorus would:

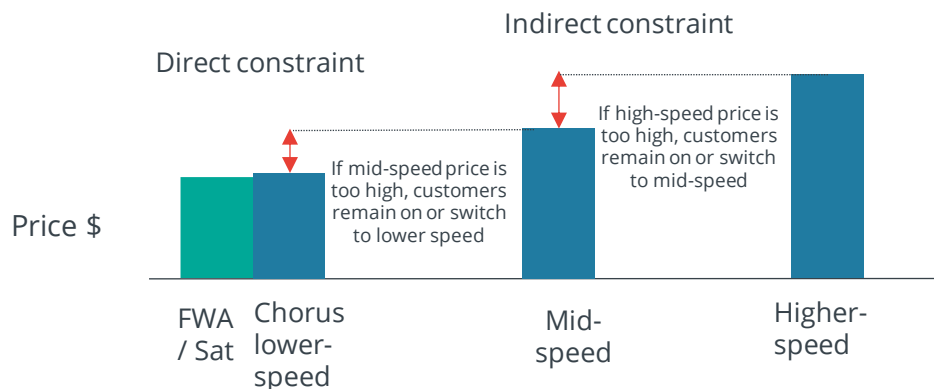
- lose customers that currently pay \$35 per month (Home fibre starter) to compete with FWA, and
- recover ~\$10 less from customers on 1Gbps plans.

Supplying differentiated products is therefore likely to be more profitable than offering a single product with a single price. Nonetheless, pricing is a delicate balance: if the gap between price and value gets too large, customers will not be prepared to pay for the higher speeds, and will select lower speeds at cheaper prices. The differentiation in offers effectively creates a 'chain of substitution' between different bitstream PON products – and means that Chorus can be constrained by competition for lower-speed services even though higher-speed services may not be subject to direct competition from alternative networks.

A chain of substitution can constrain Chorus

As highlighted in the (illustrative) Figure 1, the principle of the chain of substitution is that the price of high-speed products is constrained *indirectly* by the pricing of low-speed products—even if the two are not *direct* substitutes—if there are enough consumers who are willing to switch between products of different speeds if faced with a price incentive.⁷

Figure 1: The chain of substitution



Source: Frontier Economics

As the Commission highlights, there is already evidence of fixed wireless services constraining Chorus in its supply of lower-speed services.⁸ As we explain in section 4, the relevant question is whether the chain of substitution is effective in capping prices of higher speed products or whether there are obvious 'breaks' in the chain.

3.3 Inability to price discriminate

As noted with reference to product differentiation, profit-maximising firms will often attempt to respond to competition where it arises. However, firms will also prefer to quarantine that

⁷ This also assumes that Chorus cannot readily distinguish customers willing to switch from those that are not, and target its pricing accordingly. As we discuss in section 3.3, Chorus is subject to non-discrimination obligations, does not deal directly with retailer users, and has a limited set of pricing levers to target price-sensitive customers with lower-priced offers. Consequently, Chorus cannot price discriminate effectively between customers.

⁸ Draft decision at A40, A41.



competitive response by targeting just those customers that are liable to switch. Other than product differentiation, a means by which that can occur is price discrimination.

Prohibitions on non-discrimination are captured in the Part 4AA provisions relating to the UFB undertakings and Part 6 FFLAS regulations. Chorus is thereby prevented from price discriminating:

- by customer (RSPs)
- by geography, with a requirement for geographically-consistent prices.

Without these restrictions, Chorus could target end-users that would be more liable to switch. For example:

- By offering lower prices to RSP customers with a high proportion of lower value customers more willing to switch
- By targeting discounts to certain geographic areas where FWA has a particularly strong presence.

The restrictions act in combination with constraints arising product differentiation described earlier. Competitive constraints that might appear as ‘pockets’ of competition can have a much more substantive effect than might otherwise be thought – in particular, constraints on pricing can and do arise even where Chorus has no direct competitor.

3.4 Competitors’ vertical and horizontal integration heightens competition

A further important feature of the demand for Chorus’s products is that Chorus does not hold direct end-user relationships. Chorus must sell its services to retail service providers that are also its actual or potential competitors in the supply of retail broadband services via FWA (Spark, One NZ and 2degrees). Such competitors are therefore both horizontally and vertically integrated (as they self-supply wholesale broadband services).

The significance of the integration is that Chorus’s customers have a greater ability to target their offerings to end-users than does Chorus. Chorus only knows how much data the end-customer uses, their speed tier and their current premises. In comparison, RSPs are able to develop and access richer customer data sets which allow more precise targeting of attractive products to particular customers. So, while Chorus tries to meet commercial objectives by increasing demand and the take up of higher value services, it must be cognisant that this can only be achieved by offering price/service packages that appeal to retailers – and are more appealing than the retailers’ outside options.

As the Commission is well aware, the threat of 5G fixed wireless services is no longer theoretical, with the Commission’s own reporting highlighting its success.⁹ We would expect each of the mobile networks to have strong incentives to switch customers to their own networks given the

⁹ <https://comcom.govt.nz/news-and-media/media-releases/2024/comcom-clocks-5g-wireless-speeds-for-the-first-time>.



ability to earn higher contribution margins earned on retail mobile compared to retail fixed services¹⁰, and the ability to cross sell both services.¹¹

3.5 Switching costs are low

Substitutability can be limited by switching costs and 'lock in' to a certain technology. For example, should the price of fixed line services increase, the price would need to increase to a level incorporating the cost of switching (over a period of time) before users substitute towards a FWA service.

However, there is evidence to suggest that the cost of switching between fixed line and mobile services is minimal. Almost all customers have a mobile service (and hence a relationship with a mobile service provider) that would be willing to see fixed wireless to the home with little upfront costs. Recent product innovations provide for a fixed wireless service to deliver a similar service to a fixed connection through inclusions of WiFi-capable modems.

Another element to the cost of switching is whether the fixed line plan that a consumer may be moving from has a lock in contract or exit fees. Spark offers plans with no lock in contracts, and modems are offered on interest free terms at low prices.¹² One NZ offers a 12 month term with a modem included.¹³

3.6 Barriers to expansion are low

There are clearly material barriers to entry into the supply of wholesale and retail broadband services via an entrant's own networks. Fixed networks involve significant sunk costs, while mobile networks require access to spectrum and sunk costs (although less significant than for fixed networks). However, barriers to entry are not the most pertinent constraint as there are already a number of existing entrants. Rather, what matters for competition is the barriers to expansion by existing networks.

It is quite evidence in New Zealand and recognised by the Commission that FWA suppliers are already in the market and, in many areas, they have capacity and face little expansion cost. The question is whether there is enough capacity to prevent use of market power (via price rises).

We do agree that the actual ability to substitute large numbers of customers will be a function of the ability of alternative networks to service demand; that is, their capacity. But there is a key difference between fixed line networks and wireless networks. Fixed line networks involve large sunk costs as, effectively, all premises must be passed to ensure that network connections can occur (via drops to premises). But wireless networks can be built in a much more modular and demand responsive fashion, using existing assets such as fibre backhaul and towers, which significantly lowers the long-run marginal cost of delivering more capacity. As highlighted by Ericsson, there is:

¹⁰ Spark notes that "WBB supports improved broadband economics". Spark FY24-26 strategy, April 2023, slide 25. In Australia, mobile operators such as TPG have commented on the "higher margins" on own-supply of FWA compared with retailing fixed line broadband products from NBN Co, which is in a largely analogous position to Spark. See TPG Telecom announcement at: <https://www.listcorp.com/asx/tpg/tpg-telecom-limited/news/half-year-results-media-release-3077265.html>.

¹¹ Spark comments on "...broadband enable[ing] deeper household relationships than mobile alone, and supports cross sell and up sell." Op .cit. slide 23.

¹² For example, Spark's plans are all listed as "open term", with a \$150 modem fee. <https://www.spark.co.nz/online/shop/broadband/buy-plan?category=wireless>

¹³ <https://one.nz/mobile-plans/>



...a clear path to capacity expansion by following a procedure of “utilize, add and densify”. First, network assets already in place should be fully utilized, including radio sites, spare capacity in deployed spectrum and associated radio, baseband and transport equipment. Next, spectrum and radio network capabilities should be added, such as higher-order modulation, advanced antenna systems and beamforming, increased sectorization and 5G NR access as needed. Finally, densify with the addition of macro and small cells when necessary.¹⁴

5G technology can provide significantly more capacity than 4G technology as it can use more spectrum and use this spectrum more efficiently than 4G and earlier technologies. A recent report found that, under reasonable baseline assumptions, 5G is able to deliver a 53% increase in downlink spectral efficiency.¹⁵

¹⁴ <https://www.ericsson.com/en/reports-and-papers/mobility-report/articles/fixed-wireless-access>

¹⁵ <https://www.5g-networks.net/5g-technology/spectral-efficiency-5g-nr-and-4g-lte-compared/>



4 An alternative approach to constraints

4.1 The correct focus on ability to raise prices

In our view, the focus of the Commission in the deregulation review should be to consider the effectiveness of constraints on Chorus's ability to raise prices (or lower quality) for FFLAS services.

The Commission's analysis of competition find that competitive constraints are limited. This is based primarily on the basis of a high fibre market share, functional differences between retail services based on PON and alternatives, and some potential barriers to expansion (3.105). The Commission then finds (3.107) that, in relation to Bitstream PON services, that:

...it is probable that there is little competitive constraint on the ability of regulated providers to exercise SMP...

Somewhat peculiarly, the Commission concludes by arguing that (3.111):

...regulated providers are able to adjust service offerings in order to compete with other technologies which already operate at full-speed.

That Chorus and other suppliers can and have responded to competition by other technologies appears to demonstrate the opposite of what the Commission intends – the essence of market power is the ability to hold prices high *without* regard to the efforts of competitors. As noted by Fisher:

The right question to ask is whether that large share would survive an attempt to charge high price and earn monopoly profits. If the share is maintained solely because of low prices or better products, then we are looking at what competition is supposed to do and not a monopoly.¹⁶

The Commission ultimately pays insufficient attention to what should be the key consideration – whether switching is likely if Chorus attempted to sustainably raise prices.

4.2 An alternative approach

In our view, the Commission's approach of combining all service into the one market offers an analytical convenience, but does not allow for the consideration of the full range of constraints on Chorus's pricing.

As we identify in section 2.3.2, an alternative approach would have been to begin by squarely identifying a focal product. For Chorus, the most obvious products would have been either Chorus's Home Starter services (50Mbps) or the most popular 300Mbps service.

To this focal product, we could directly consider whether an attempt to raise prices would yield sufficient substitution to make such a price rise unprofitable. Effectively, this would require an application of the 'critical loss' test, and could proceed as follows.

Estimate the critical loss of volume

The critical loss of volume is defined as:

¹⁶ F. Fisher, "Diagnosing Monopoly", *Quarterly Review of Economics & Business*, 19:7, 1979, p. 682.



$$\text{Critical Loss} = \frac{x\%}{x\% + m\%}$$

where x is the hypothetical price increase and m is the contribution margin.

The contribution margin is defined as the percentage difference between the price and average variable cost. Variable cost is a proxy for the actual costs saved because of the reduction in sales. The margin for Chorus is likely to be somewhat higher than 70%, with that number being derived from Chorus 2023 EBITDA and revenues.¹⁷

For a 5% price increase, this would indicate that the critical loss would be around 6.7% - that is, if we consider that Chorus has around 50,000 customers on its Home Fibre Starter product, it would need to lose around 3,500 customers in the event of a price rise for that price rise to be unprofitable.

For completeness, we also note that the price rise of 5% would have to be translated to a retail price increase. Given the retail margin (which is unchanged) and a retail price of no more than \$60, this suggests that a 5% price rise at wholesale would translate into price rise at retail of around 3% (\$1.75 per month or \$21 per year).

Estimate the (likely) actual loss of volume

Now we are in a better position to establish whether the quantum of substitution that is required is plausible given what we know about the market. There are two points that are relevant:

- The first is that 3,500 customers is a relatively small number in comparison to existing customers supplied using existing FWA products. The Commission indicates that there are more than 200,000 FWA services (June 2023, Figure 3.3) with an estimated 7,000 urban 5G connections (which offer much faster speeds than 50Mbps downlink). Spark alone already indicated that it had around more than 200,000 customers on fixed wireless plans in April 2023.¹⁸ We would be surprised if existing networks could not accommodate this degree of switching without requiring any further investment.
- The second point is that suppliers of FWA services that also supply Chorus's wholesale fibre services at retail could target specific customers that have patterns of relatively low usage. This would facilitate switching without high risk of being overwhelmed by customers continuously downloading. It is the distribution of usage that is important. Broadband usage data is typically highly skewed across users, with many relatively smaller users and a small number of very large users. Existing literature highlights that broadband usage patterns across customers likely follows a log-normal distribution (Figure 1).¹⁹ A lognormal distribution shows a skew in the data in such a way that average/mean usage is well above the median usage.

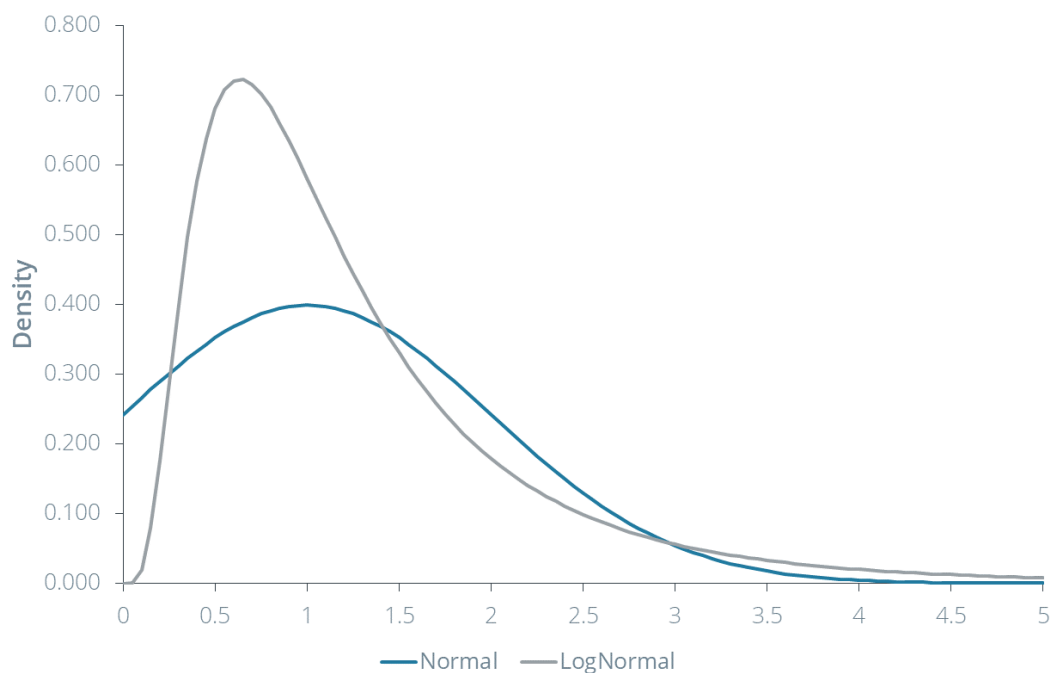
¹⁷ <https://company.chorus.co.nz/media/releases/chorus-delivers-solid-full-year-result-as-kiwis-continue-to-favour-fibre>

¹⁸ Spark FY24-26 strategy, April 2023, slide 6. Spark also anticipated WBB growth to 35% of its customers by end FY26.

¹⁹ See for example G. Ford, *Approximating the Distribution of Broadband Usage from Publicly-Available Data*, 2012, available at: https://www.researchgate.net/publication/256031582_Approximating_the_Distribution_of_Broadband_Usage_from_Publicly-Available_Data.



Figure 2: Lognormal and normal distributions (Mean = 1, SD = 1)



Source: Frontier Economics

Although the Commission does not appear to state clearly that the ‘lower speed’ market is competitive, it does appear to accept a ‘difference in competitive conditions’ (A38). The next question is whether such competition is effectively limited to low speed services, or whether there is a sufficient break in the chain of substitution for Chorus’s other services to be constrained.

Consider possible breaks in the chain of substitution – lower speed

The Commissions’ analysis indicates that there is a variety of views as to whether there is a significant break in the chain of substitutes (A37-A38). However, the Commission finds that 100Mbps is the possible ‘break’ between low speed and higher speeds.

The next step in the analysis is then to consider whether increases in the price of services at speeds at 300Mbps (Chorus’s most popular plan) would result in (i) substitution to FWA or (ii) customer downshifting to Chorus’s 50Mbps HFS plan.

The relevant considerations here are that:

- The critical loss at around 6.7% would equate to roughly 40,000 customers, with a retail price increase of around \$2.70 per month.
- Spark offers a 5G FWA service with similar downlink speeds for a cheaper price (\$88 per month compared with \$96 per month for the cheapest product using Chorus’s 300Mbps wholesale product) and 2degrees offers an unlimited 5G FWA product at \$59 per month. Hence, while fibre offers a premium experience it is offered at a premium price.
- Spark’s existing customer relationships with its ~ 200,000 customers on fixed wireless plans²⁰ would be of considerable value in targeted expansion of 5G FWA services.

²⁰ Spark FY24-26 strategy, April 2023, slide 6.



- For the increase to be unprofitable, some proportion of the 40,000 customers would need to switch to FWA and some to Chorus's lower speed offers.

Rapid and widespread switching to FWA would cause capacity challenges; however, it is important not to overstate the challenge of switching given that:

- Spark, One NZ and 2degrees all offer 5G FWA services, so the traffic would be spread across the three networks. Spark also anticipated WBB growth from 30% to 35% of its customers by end FY26, implying a further ~35,000 FWA connections.²¹ An additional 40,000 FWA connections across the three MNOs would therefore seem readily achievable from a capacity perspective.
- Spark, One NZ and 2degrees have the ability to target lower-use 300Mbps customers from examination of their own customers usage data, and to target those customers with FWA offers.
- As identified in the preceding section wireless networks can be built in a much more modular and demand responsive fashion, using existing assets such as fibre backhaul and towers, which significantly lowers the long-run marginal cost of delivering more capacity.
- Many subscribers have been added in other countries such as the United States, where Opensignal reports that: "Despite adding more than eight million 5G FWA subs using 400+ GB per month of data since Q1 2021, the overall mobile network experience on T-Mobile and Verizon's mobile networks has not been compromised."²² In Australia, there were 510,000 fixed wireless connections provided by mobile network operators at end-2023, an increase of 47,000 over six months and an increase of 73% since the ACCC started collecting data on the technology in December 2021.²³

We think it reasonably follows from this approach that the key things for the Commission to investigate would therefore be:

- Patterns of switching from previous price changes (to the extent that patterns can be differentiated from general market growth).
- Plans relating to the development of 5G fixed wireless services.
- The costs to suppliers of additional expansions to capacity for a reasonable share of switching customers.
- Whether there are reasons why New Zealand would not be likely to follow patterns elsewhere including the United States and Australia.

Breaks in the chain at higher speeds

Assuming that a constraint is found between 300Mbps and lower speed/price services, a similar analysis for higher speed services should then follow in much the same way as described for the lower speed services. The primary difference between these analyses is that for higher speed services, the relevant constraints include the pricing of Chorus's own 300Mbps services. That is, if the 300Mbps is found to be competitively-constrained by lower speed services, the Commission should investigate whether increases in price of the 1Gbps service would result in sufficient switching to the competitively-constrained 300Mbps Chorus service or FWA services. Around

²¹ Spark FY24-26 strategy, April 2023, slide 25.

²² <https://www.opensignal.com/2024/06/06/5g-fixed-wireless-access-fwa-success-in-the-us-a-roadmap-for-broadband-success-elsewhere>

²³ <https://www.telecoms.com/5g-6g/fwa-usage-rockets-in-australia>



16,000 customers would need to switch.²⁴ There should be no concerns about sufficient capacity when switching customers to 300mpbs services supplied by Chorus, so, in our view, the focus should be whether the ~\$2 retail price increase implied by a SSNIP would cause sufficient switching to the plan that wholesales for around \$8 per month less. It is by no means obvious that substitution is an unlikely outcome.

4.3 Conclusion

The approach we have presented in the section focuses on Chorus's ability to raise prices in the absence of regulation. Such a finding would be necessary to make a finding of substantial market power that would negate the need for a deregulation review. We conclude there must be serious doubt that attempts by Chorus to selectively or generally raise prices above present levels would be successful. Preliminary quantitative analysis highlights that far less substitution is required to constrain pricing than indicated by the broad-brush approach to competition focusing on market shares. A greater focus on competition and switching at the margin is warranted. We therefore believe that the Commission's decision that no reasonable grounds exist is not well founded.

²⁴ Based on 235,000 residential customers on 1Gbps plans and a critical loss of 6.7%. Figures from Chorus, Q3 FY 24 Connections Update, slide 6.

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