

Copper Services Investigation under section 69AH of the Telecommunications Act

**Report to the Minister for Media and Communications on whether
Schedule 1 should be altered in respect of regulation of the relevant copper
services**

Draft recommendation report

The Commission: Tristan Gilbertson
Nathan Strong
Loretta Lovell
Pierre van Heerden

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Associated documents

Publication date	Reference	Title
5 July 2016	ISSN 1178-2560	<u>Review of Designated and Specified Services under Schedule 1 of the Telecommunications Act 2001 – Reasons for final decision on whether to commence an investigation under clause 1(3) of Schedule 3 of the Telecommunications Act 2001</u>
22 April 2024	ISBN 978-1-991085-94-8	<u>Copper Services Investigation under section 69AH of the Telecommunications Act – Approach paper</u>
19 December 2024	ISBN 978-1-99-133213-4	<u>Fibre fixed line access service deregulation review under section 210 of the Telecommunications Act – Reasonable grounds assessment final decision</u>

Glossary

Table of terms and abbreviations	
The Act	Telecommunications Act 2001
Access seeker	Has the meaning given in section 5 of the Act and includes a retail service provider
ADSL	Asymmetric digital subscriber line – a copper-based technology that can provide basic fixed line broadband services
AIQ	Annual Industry Questionnaire
AMR	Annual Telecommunications Monitoring Report
Commission	The Commerce Commission
CPE	Customer premises equipment
CWC	Copper Withdrawal Code
Designated service	A service described in Part 2 of Schedule 1, which includes both price and non-price terms for access
DSL	Digital subscriber line
End-user	A person who is the ultimate recipient of a service or of another service whose provision is dependent on a service
FWA	Fixed wireless access – we use FWA in this report to describe cellular fixed wireless access broadband services (eg, 4G and 5G)
GEO	Geostationary satellite – satellites positioned so that they remain over the same place on Earth at around 35,000km
HFC	Hybrid fibre-coaxial – a broadband network in parts of Wellington, Kāpiti and Christchurch which uses fibre-optic and copper cabling
Latency	The amount of time it takes for a data packet to go from one place to another, which is the delay your internet connection experiences. Low latency is better than high latency
LEO	Low earth orbit satellite – satellites deployed in constellations at lower levels (generally 500 – 1,500km above the Earth’s surface) than GEO satellites. They do not appear to be stationary to users, but when a full constellation has been deployed there should always be at least one satellite in view
MBIE	Ministry of Business Innovation and Employment
MBNZ	Measuring Broadband New Zealand (report) – a programme run by the Commission to measure the broadband performance of New Zealand households
Minister	The Minister for Media and Communications
MNO	Mobile network operator
Non-cellular FWA	Broadband services provided over wireless technologies other than cellular FWA – such as digital microwave radio. These services are provided by local wireless internet service providers (WISPs)
OIA	Official Information Act 1982
OTT	Over-the-top applications such as Facebook Messenger and WhatsApp
RCS	Rural Connectivity Study

Table of terms and abbreviations	
Relevant copper services	The five copper services in scope of this Investigation, outlined in section 69AH of the Act
RSP	Retail service provider
Rural copper area	Area defined for the purposes of this Investigation which includes all rural premises in coverage of Chorus's copper network as well as premises outside that coverage which have an existing copper connection (as at 30 June 2023)
SFA	Specified fibre areas – these are geographic areas where specified fibre services are available to end-users
Specified service	A service described in Part 3 of Schedule 1 which includes only non-price terms for access
STD	Standard terms determination – sets out the terms on which wholesale telecommunications service providers must deliver their services to other telecommunications providers
TSO	Telecommunications service obligation
UBA	Unbundled bitstream access – a regulated copper-based bitstream service offered by Chorus
UBA Backhaul	Unbundled bitstream access backhaul
UCLF	Unbundled copper low frequency – a regulated copper-based voice service offered by Chorus
UCLL	Unbundled copper local loop network – a Chorus copper line that connects a phone user to the local exchange that can be accessed by retail telecommunications providers to provide a voice and broadband service
UCLL Backhaul	Unbundled copper local loop network backhaul (telephone exchange to interconnect point)
UCLL Co-location	Unbundled copper local loop network co-location
VDSL	Very high-speed digital subscriber line – a copper-based broadband connection that allows higher speeds than ADSL technology
VoIP	Voice over internet protocol – a technology that enables phone calls over a broadband connection instead of an analogue phone line
WISP	Wireless internet service provider – smaller providers operating mostly in regional or rural areas, using non-cellular FWA, but increasingly also selling satellite and fibre services

Chapter 1 Introduction

Overview

- 1.1 By the end of 2025, we need to advise the Minister for Media and Communications (**Minister**) whether Chorus's copper network outside fibre areas should still be regulated. This regulation was put in place nearly twenty years ago to ensure competitive access to the only network that could provide widespread voice and broadband services to New Zealanders.
- 1.2 Copper regulation has already been removed where Ultra-Fast Broadband (**UFB**) fibre is available. We now need to decide if copper regulation is needed in rural areas outside the UFB footprint.
- 1.3 Our draft recommendation is that copper regulation is no longer needed to promote competition because technologies like Fixed Wireless Access (**FWA**) and satellite are widely available and used by consumers. This report explains why we believe competition from these technologies is enough to justify removing copper regulation.
- 1.4 Removing copper regulation would be a significant change given its historical importance in New Zealand's telecommunications market. It would also enable Chorus to withdraw copper services that are still used by a number of consumers in rural areas.¹
- 1.5 Since Chorus plans to stop using copper by 2030, we believe it is important to have a managed withdrawal process to protect rural consumers during any change. Rural consumers will not benefit from the protections of the Copper Withdrawal Code (**CWC**), which was created to help manage the phase-out of copper in urban areas. We think it is important to extend CWC-type protections into non-fibre areas. This could occur in one of two ways, either through legislative change or, alternatively, through commercial undertakings provided by Chorus.²

¹ Chorus is constrained in its ability to withdraw copper in rural areas in two ways. First, Chorus uses its copper network to meet its supply obligations under the Telecommunications Service Obligation (TSO). The purpose of the TSO is to enable specific telecommunications services to be available and affordable. Chorus's TSO requirements are set out in a deed between the Crown and Chorus overseen by the Ministry of Business, Innovation & Employment (MBIE). Second, the copper network remains regulated in rural New Zealand to promote competition for the long-term benefit of consumers by allowing other providers to access the network. This regulation is enacted through Standard Terms Determinations (STD) by the Commerce Commission. This Investigation is a review of the access regulation that remains on the copper network in rural areas set out in the relevant STDs. It is not a review of the TSO. While there is overlap between these different regulatory instruments (many of the copper lines covered by the TSO will also be subject to access regulation under the STDs), any change in one regulatory instrument does not affect the other. For example, if we removed copper access regulation in rural areas, the TSO would remain in place, and any rural premises previously subject to a TSO would remain so.

² For a small group of consumers, satellite will be the only technology available if copper is withdrawn. Some of these consumers will have the means to move to a better performing satellite service, but affordability is likely to be an issue for others. This should be considered as part of a managed withdrawal process.

Purpose of this report

- 1.6 This report sets out our draft recommendations to the Minister on whether Schedule 1 of the Telecommunications Act 2001 (**the Act**) should be altered, in any of the ways set out in sections 66 and 67 of the Act, in respect of regulated copper services (**relevant copper services**).
- 1.7 The Act provides for various changes including the potential removal of regulation.
- 1.8 The relevant copper services are the following wholesale services:³
- 1.8.1 Chorus’s unbundled bitstream access (**UBA**) service;
 - 1.8.2 Chorus’s unbundled copper low frequency (**UCLF**) service;
 - 1.8.3 Chorus’s unbundled bitstream access backhaul (**UBA Backhaul**) service;
 - 1.8.4 Chorus’s unbundled copper local loop network backhaul (**UCLL Backhaul**) service; and
 - 1.8.5 Chorus’s unbundled copper local loop network co-location (**UCLL Co-location**) service.
- 1.9 We are required under section 69AH of the Act to complete an investigation into the regulation of the relevant copper services,⁴ by no later than 31 December 2025.⁵
- 1.10 The result of this process is a final report to the Minister outlining our recommendations regarding the regulation of the relevant copper services. The Minister may accept, reject or request clarification in respect of any of our final recommendations.⁶

Structure of this report

- 1.11 This report is structured as follows:
- 1.11.1 **Chapter 1** is an introduction;

³ The Telecommunications (New Regulatory Framework) Amendment Act 2018 removed UCLL and the UCLL backhaul interconnection element of both UCLL backhaul and UCLL co-location to Chorus’s UCLL network from Schedule 1 from 1 January 2020. As such, while the UCLL co-location and UCLL backhaul technical definitions from the Act include a connection with Chorus’s UCLL network, in essence, only the connection with Chorus’s UCLF service is still in Schedule 1, and thus in scope of the Investigation.

⁴ Four copper services are listed in section 69AH, including ‘copper fixed line access services’. However, as described in section 5, copper fixed line access services encompasses two services (as they are described in subpart 1 of Part 2 of Schedule 1); Chorus’s unbundled bitstream access, and Chorus’s unbundled copper low frequency service. These five copper services are all of the remaining regulated copper services in Schedule 1 of the Act.

⁵ Our [Approach paper](#) and associated [Gazette notice](#) provided public notice of the Investigation on 22 April 2024.

⁶ Clause 5A(1)(b) of Part 1 of sch 3 of the Act also states that the Minister may request (after receiving the final report) that the Commission “provide any additional information that is necessary to understand the nature and implications of the Commission’s recommendations that are included in the final report”.

- 1.11.2 **Chapter 2** outlines the assessment framework we have used in reaching our draft recommendation;
- 1.11.3 **Chapter 3** contains the analysis and rationale for our draft recommendation on whether Schedule 1 should be altered;
- 1.11.4 **Attachment A** outlines and responds to feedback on our Approach paper; and
- 1.11.5 **Attachment B** contains descriptions of the relevant copper services from legislation.

Our process to date and next steps

- 1.12 On 22 April 2024 we published our Approach paper for consultation. This paper set out the proposed process, assessment framework and types of evidence we would consider as part of the Investigation.⁷
- 1.13 We received nine submissions and one cross-submission on our Approach paper.⁸ We have taken this feedback into account and, where relevant, we have reflected it in our approach and analysis. In addition, Attachment A outlines and responds to the feedback received in these submissions on the proposed approach.
- 1.14 Table 1.1 sets out the process to date and indicative dates for the Investigation.

Table 1.1 Investigation process

Milestone	Details	Date
Approach paper published	Proposed legal framework, economic framework, geographic breakdown and service definitions	22 April 2024
Submissions	Submissions on our Approach paper received	22 May 2024
Cross-submissions	Cross-submissions on our Approach paper submissions received	11 June 2024
Draft recommendation report (this report)	Draft recommendation as to whether Schedule 1 should be altered with regard to the relevant copper services	12 March 2025
Submissions	Submissions on our draft recommendation report due	9 April 2025
Cross-submissions	Cross-submissions on our draft recommendation report due	5 May 2025

⁷ Commission "[Copper Services Investigation under section 69AH of the Telecommunications Act – Approach paper](#)" (24 April 2024).

⁸ Both the submissions and cross-submission can be found on our [website](#).

Milestone	Details	Date
Final recommendation report to the Minister	Final recommendation as to whether Schedule 1 should be altered with regard to the relevant copper services	Q3 2025

- 1.15 Please note that this report is primarily based on the latest full set of data available to the Commission as of 30 June 2023. Our final report will be updated to include data as of 30 June 2024.

Information for interested parties on making a submission

Process and timeline for making submissions

- 1.16 We are seeking submissions on our draft recommendation by 5pm on 9 April 2025. We then plan to invite cross-submissions by 5pm on 5 May 2025. Cross-submissions should only focus on matters raised in submissions. We strongly discourage stakeholders from raising new matters via cross-submissions.⁹
- 1.17 You should address your responses to:
- 1.17.1 Rachael Coyle (Head of Telecommunications);
 - 1.17.2 c/o telecommunications@comcom.govt.nz.
- 1.18 Please include “Copper Services Investigation” in the subject line. We prefer responses to be provided in a file format suitable for word processing in addition to PDF file format.
- 1.19 We do not intend to hold a conference or public hearing in relation to the proposed alterations. We believe engagement through submissions and cross-submissions will be sufficient.

Confidentiality

- 1.20 We intend to publish the non-confidential/public version of all submissions we receive on our website. This also applies to cross-submissions.
- 1.21 The protection of confidential information is something we take seriously. If you need to include commercially sensitive or confidential information in your submission or cross-submission, you must provide us with both confidential and non-confidential/public versions of your submission that are clearly identified.
- 1.22 You are responsible for ensuring that commercially sensitive or confidential information is not included in a public version of a submission or cross-submission that you provide to us.

⁹ We may place less weight on submissions that are unable to be properly tested because they are raised for the first time in cross-submissions.

- 1.23 All submissions and cross-submissions we receive, including any parts of them that we do not publish, can be requested under the Official Information Act 1982 (**OIA**). This means we would be required to release material that we do not publish unless good reason existed under the OIA to withhold it. We would normally consult with the party that provided the information before we disclose it to a requester.

Chapter 2 Assessment framework

Chapter purpose and structure

- 2.1 This chapter sets out the assessment framework, including the legal and economic frameworks, we have used in reaching our draft recommendation.
- 2.2 This chapter is structured as follows:
 - 2.2.1 legal framework; and
 - 2.2.2 economic framework.
- 2.3 We have had regard to submissions and cross-submissions on our Approach paper and have made updates to the assessment framework accordingly. We have provided a summary of submission points, and our response, in Attachment A.
- 2.4 We are also mindful of the wider regulatory landscape including telecommunications service obligations (**TSO**), standard terms determinations (**STD**), existing Codes and the potential implications of our draft recommendation.

Legal framework

Overview

- 2.5 The relevant copper services are classified as designated services in Schedule 1.
- 2.6 To ensure that the scope of Schedule 1 remains appropriate, we are required by Schedule 3 to consider, at least every five years, whether to carry out an investigation into whether regulation remains justified for each service.
- 2.7 For the relevant copper services, Schedule 3 is modified in certain respects by section 69AH, as set out below.
- 2.8 This section sets out the legal framework we have applied to this Investigation in light of these modifications.

Requirement to undertake an investigation

- 2.9 We are required under section 69AH of the Act to undertake an investigation into the regulation of the relevant copper services by no later than 31 December 2025, unless there are reasonable grounds for not doing so.

Purpose of the Investigation

- 2.10 Section 69AH is contained within Part 2AA of the Act entitled “Deregulation of copper fixed line access services”. Part 2AA was inserted as part of the 2018 Amendment Act. The purpose of Part 2AA is to:¹⁰

¹⁰ Telecommunications Act, s 69AA.

- 2.10.1 deregulate copper fixed line access services in areas where fibre fixed line access services are available; and
 - 2.10.2 provide protections for end-users of copper fixed line services and certain other designated services in deregulated areas; and
 - 2.10.3 provide for the Commission to investigate whether the regulation of copper fixed line access services and certain other designated services should be altered.
- 2.11 Schedule 3 is covered by the purpose set out in section 18 of the Act, which provides for the promotion of competition in telecommunications markets for the long-term benefit of end-users of telecommunications services, by regulating, and providing for the regulation of, the supply of certain telecommunication services between service providers.¹¹
- 2.12 In that regard, section 18 requires that:
- 2.12.1 in determining whether or not (or to the extent to which) any act or omission will result (or will be likely to result) in competition in telecommunications markets for the long-term-benefit of end-users, the efficiencies that will (or will be likely to) result from those acts or omissions must be considered;¹² and
 - 2.12.2 in determining whether or not competition for the long-term benefit of end-users is promoted, the incentives to innovate that exist for, and the risks faced by, investors in new telecommunications services that involve significant capital investment and that offer capabilities not available from established services must also be given consideration.¹³
- 2.13 The statutory purpose of the Investigation, in light of section 18 and Part 2AA of the Act, is to examine whether Schedule 1 of the Act should be altered, to ensure that the regulation of relevant copper services remains fit for purpose, having regard to the purpose in section 18.^{14, 15}
- 2.14 In particular, we must inquire into whether a telecommunications service should be added to or omitted from Schedule 1; or in respect of a service, whether an amendment is required.¹⁶

¹¹ Telecommunications Act, s 18(1).

¹² Telecommunications Act, s 18(2).

¹³ Telecommunications Act, s 18(2A).

¹⁴ While s 69AH was not explicitly discussed, the Parliamentary debates on the 2018 Amendment Act (which introduced s 69AH into the Act), was that the 2018 Amendment Act's objective was to create a regulatory regime that was "fit for purpose" and able to best achieve the objectives of the 2018 Amendment Act.

¹⁵ Telecommunications Act, s 69AA(c).

¹⁶ Telecommunications Act, sch 3 cl 1, and s 66 and s 67.

- 2.15 In making our decision or recommendation we are required to:¹⁷
- 2.15.1 consider the purpose set out in section 18; and
 - 2.15.2 if applicable, consider the additional matters set out in Schedule 1 regarding the application of section 18;¹⁸ and
 - 2.15.3 make the decision or recommendation that we consider best gives, or is likely to best give, effect to the purpose set out in section 18.
- 2.16 In exercising our powers under Schedule 3, we are also required to have regard to any economic policies of the Government that are provided to the Commission by the Minister.¹⁹ There are currently no such policy statements that we consider relevant to this Investigation.

Initiation of an investigation

- 2.17 The presumption under section 69AH is that we will carry out and complete an investigation into the relevant copper services by 31 December 2025, unless there are reasonable grounds for not doing so, which we have not found to be the case.

Process for conducting an investigation

- 2.18 Section 69AH(2) states that in respect of the Investigation, we are required to complete it in accordance with Part 1 of Schedule 3, with the exception that the 240-working day deadline provided for in clause 4(1) of Schedule 3 does not apply.²⁰
- 2.19 As such, we must follow the timing in section 69AH, instead of clauses 1 and 4(1) of Schedule 3 and thereby complete our Investigation by 31 December 2025.^{21, 22} In all other respects we must follow the procedure set out in Part 1 of Schedule 3.
- 2.20 The Schedule 3 process for regulating, amending, or deregulating a service is as follows:

¹⁷ Telecommunications Act, s 19.

¹⁸ Schedule 1 provides the following additional consideration regarding the application of s 18 to the UBA service: “The Commission must consider relativity between this service and Chorus’s unbundled copper local loop network service (to the extent that terms and conditions have been determined for that service)”. The four remaining relevant services have no additional considerations set out in Schedule 1.

¹⁹ Telecommunications Act, s 19A(1).

²⁰ Telecommunications Act, s 69AH(2).

²¹ Schedule 3, cl 1 is expressly stated as being subject to section 69AH (sch 3, cl 1(7)).

²² The standard timing for considering an investigation in sch 3 of the Act is at intervals of 5 years. However, s 69AH(1) expressly provides that the Commission must complete, no later than 31 December 2025, an investigation under Part 1 of sch 3 into whether sch 1 should be altered in any of the ways set out in s 66 and s 67.

- 2.20.1 The Commission must give public notice of the commencement of an investigation under Part 1 of Schedule 3.²³ Once notice has been given, a provider of the relevant service can submit voluntary undertakings within 40 working days of the Investigation commencing.²⁴ These trigger various adjustments to the process.
- 2.20.2 After public notice of the Investigation has been given, we are required to prepare a draft report and provide public notice of the same. In that public notice, we will:²⁵
- 2.20.2.1 set a date for submissions (which must not be later than 20 working days after release of the draft report); and
- 2.20.2.2 if we decide to hold a conference or public hearing, set a date for this (which must not be later than 10 working days after the closing date for submissions).
- 2.20.3 Upon receipt of submissions and any information provided at any conference or hearing, we will prepare a final report taking all information received into account.²⁶
- 2.20.4 We are required to then provide the final report to the Minister and publish it. In the case of the Investigation, this must be by 31 December 2025.²⁷ Failure to comply with the statutory deadline does not invalidate the report.²⁸
- 2.21 We may include in our recommendations that the Minister defer a decision on a relevant copper service. If the Minister accepts a recommendation to defer a decision, then at the end of the deferral period we must prepare:²⁹
- 2.21.1 a draft report setting out any changes to our recommendations, on which submissions will be made (which must not be later than 20 working days after the date a public notice of our draft report is made), to which a subsequent final report to the Minister will be made; or
- 2.21.2 a final report recommending the Minister accept an undertaking offered under Schedule 3A.

²³ Telecommunications Act, sch 3 cl 1(6).

²⁴ Telecommunications Act, sch 3A cl 15. We have received no such undertakings.

²⁵ Telecommunications Act, sch 3 cl 2(1)(c).

²⁶ Telecommunications Act, sch 3 cl 4(2).

²⁷ Telecommunications Act, s 69AH(1)(a).

²⁸ Telecommunications Act, sch 3 cl 4(4A).

²⁹ Telecommunications Act, sch 3 cl 7(1)(b).

Final report and our recommendations

- 2.22 As the Investigation is a Schedule 3 Part 1 investigation, we can inquire into, and recommend, any of the matters in sections 66 and 67.³⁰ These matters include adding or omitting a relevant copper service, or amending the current regulation in any of the ways set out in section 66(1)(c).
- 2.23 Our final report does not need to recommend any alterations to Schedule 1. As a result of our findings, we may conclude that no alterations are required and advise the Minister accordingly. However, in the event we recommend some alterations to Schedule 1, the Act requires that the draft and final reports will contain:³¹
- 2.23.1 detail of any proposed alterations;
 - 2.23.2 recommendations as to any alterations, and any potential deferral of those;
 - 2.23.3 any recommendations that the Commission considers to be sufficiently related to each other that they ought to be considered together; and
 - 2.23.4 reasons for the Commission's views on the above matters, including both majority and dissenting views (if any).
- 2.24 Our final report, if it proposes alterations, must include all relevant details necessary for inclusion in Schedule 1, and the reasons for our views on those matters. Depending on the extent of the alteration(s) proposed, our final report may cover:³²
- 2.24.1 the description of the service;
 - 2.24.2 any applicable conditions that must be met before access obligations apply;
 - 2.24.3 the description of access seekers;
 - 2.24.4 the description of access providers;
 - 2.24.5 the description of the applicable access principles;
 - 2.24.6 the description of the limits (if any) on the applicable access principles;
 - 2.24.7 any applicable initial pricing principle, the applicable final pricing principle, and any requirement referred to in section 45 for the applicable final principle;³³ and

³⁰ Telecommunications Act, sch 3 cl 1(1).

³¹ Telecommunications Act, sch 3 cls 2 and 4.

³² Telecommunications Act, sch 3 cl 4, and s 66(1)(c).

³³ Schedule 1 can include options in relation to some matters, for example having two potential pricing principles, with the decision as to which one best achieves the statutory purpose being left to the Commission.

- 2.24.8 any additional matters that must be considered regarding the application of the section 18 purpose.
- 2.25 Upon receiving our final report, the Minister may:³⁴
 - 2.25.1 seek clarification or additional information on any point, or seek reconsideration of a particular issue from us;
 - 2.25.2 alter Schedule 1 of the Act in the way recommended (or defer consideration of the alteration for a period recommended by the Commission); or
 - 2.25.3 decline our recommended approach.
- 2.26 Depending on whether and how Schedule 1 has been altered, the Commission may then be required to commence the STD review process under Part 2 of the Act.³⁵

Economic framework

Overview

- 2.27 This section sets out the economic framework we have applied in reaching our draft recommendation.
- 2.28 The economic framework we applied for this investigation includes four steps:
 - 2.28.1 **Defining the service** – defining the regulated service, including where and how retailers use the service to offer retail services to end-users.
 - 2.28.2 **Identifying alternatives** – identifying alternative services that could act as close substitutes for the regulated service.
 - 2.28.3 **Assessing competition** – analysing the extent to which competition from alternatives provides competitive constraint on the regulated service.
 - 2.28.4 **Identifying what state best gives effect to the section 18 purpose** – comparing the factual (the future state with existing regulation) to the counterfactual (the future state without regulation) and considering which best gives effect to the section 18 purpose.
- 2.29 The Act does not prescribe a specific timeframe we need to consider as part of Schedule 3 reviews.

³⁴ Telecommunications Act, sch 3 cls 5A and 6.

³⁵ Schedule 1 of the Act sets out the basic description of the designated and specified services, while the Part 2 determinations set the precise and detailed terms of supply for designated or specified services.

- 2.30 Our reviews are forward looking, analysing the effect of potential changes to regulation by comparing a future with the existing regulation (the factual) against the future with potential alterations to regulation (one or more counterfactuals). We do this by considering evidence as to the current state of competition and anticipate, based on relevant evidence, whether this state (alongside any historical changes and trends) can be expected to continue into the future. We then anticipate how this future may be different as a result of potential alterations to Schedule 1.
- 2.31 In some cases, this may include comparing the current state of competition with that which existed at the time of the last review of the service(s) in question, and/or when the service(s) was first regulated.³⁶ What is most appropriate for a specific review will be determined on a review by review basis.³⁷ For this Investigation we did not consider a backward looking comparison would assist us in considering current and expected future competition.

Step 1: Defining the service

- 2.32 The first step is to define the regulated service (the relevant copper services) and the purpose it serves to the retailer and/or end-user.
- 2.33 Doing this involves considering three key elements:
- 2.33.1 First, how the service is described in existing legislation and regulatory decisions, as this directs and informs the role the regulated service is intended to play in the market.
- 2.33.2 Second, what the service is used for. There may be multiple uses at different levels of the value chain (ie, wholesale and retail) that are influenced by the service. Recognising that the service was initially regulated due to potential or actual end-user harm, it will be important to consider how services are supplied to end-users using the regulated service.
- 2.33.3 Third, the geographic constraints to providing the service (the geographic area(s)), which, alongside step 2 below, informs whether competition analysis should be undertaken at a national level, or if a more granular level is more appropriate.
- 2.34 In describing the services, we may identify dependencies between services, such as where one is unlikely to be used without another, or where deregulation of one service is impractical without deregulation of others (due to actual or potential consumer harm). Such dependencies may guide how we undertake our analysis.

³⁶ This approach is often used in cyclical reviews (ie, 5-year intervals) as it allows us to compare the state of competition to that which existed at the previous review, and also if developments we expected are now present.

³⁷ We have previously indicated that we expect sch 3 reviews to be carried out considering the current state of competition compared with either the state of competition as at the last review and/or the state of competition when the service was first regulated. These are two possible options that sch 3 reviews using this framework could consider adopting regarding the timeframe for consideration.

Step 2: Identifying alternatives

- 2.35 The next step is to identify alternative services that could be close substitutes for the defined regulated service.
- 2.36 As competitive constraints on regulated services can be provided both directly and indirectly, where relevant, we would identify and consider both direct alternatives, and any indirect alternatives.
- 2.37 For example, for a regulated wholesale service:
- 2.37.1 in terms of direct constraints, we would consider whether there are any alternative wholesale services that a wholesale customer (such as a retail service provider (**RSP**)) could switch to in the event the price of the regulated wholesale service increased; and
 - 2.37.2 in terms of indirect constraints, wholesale customers who purchase regulated services may be competing in a downstream market against alternative services that are not dependent on the regulated service. The extent to which those alternative services constrain the regulated service (indirectly at the retail level) will also be considered.
- 2.38 Steps one and two are sometimes referred to as defining the market.³⁸

Step 3: Assessing competition

- 2.39 The third step involves consideration of the effectiveness of competition from the alternative services. Here we are considering the extent of the effectiveness of the alternative services in constraining the market power of the incumbent's regulated service(s) (in the absence of regulation) via competition.³⁹
- 2.40 Both direct and indirect competitive constraints would be considered in this step.
- 2.41 Consideration of market competitiveness includes analysis of factors such as:
- 2.41.1 whether alternatives rely on the regulated service;
 - 2.41.2 market structure and trends – including the number of competitors, market share, the availability of alternatives, the ability of existing competitors to expand (for example through spare or new capacity), and entry/exit barriers and conditions;

³⁸ Defining markets is a distinct step in several review frameworks. However, we deem it most appropriate to combine this into steps 1 and 2 for ease of understanding. For further information on market definition see Commission, "[Mergers and acquisitions Guidelines](#)" May 2022, Chapter 3.

³⁹ In our analysis, the alternatives identified and the competitive constraints they provide on the regulated services would be the same were regulation in place as it is currently or if the relevant service were not regulated. We have noted this in each of the relevant sections.

2.41.3 the extent to which alternatives represent (sufficiently) close substitutes – as there are likely to be differences in a range of characteristics between alternative services (such as technical capability), the degree and nature of the differences will determine whether they are close substitutes for the regulated service; and

2.41.4 actual demand and switching behaviour by access seekers (RSPs and end-users) – understanding the actual behaviours exhibited by access seekers.

2.42 We take expected future developments into account in assessing competition.

Step 4: Identifying what state best gives effect to the section 18 purpose

2.43 Finally, we will assess the over-arching costs and benefits of potential alterations to legislation, comparing the factual (the future state with existing regulation) against the counterfactual (the future state with the potential alterations to regulation or deregulation), with regard to which best gives effect to the section 18 purpose. For example, we do not necessarily require fully effective competition to justify alterations (such as deregulation), as there may be situations where the benefits of regulation are outweighed by the costs.

2.44 The first step in this process is to identify the different options available (counterfactuals) to compare with the factual (status quo). These include the range of options set out in section 66 of the Act and can include alterations to current regulations, partial or complete deregulation. These could include consideration of different timing options for alterations to Schedule 1.

2.45 Whether we consider one or multiple counterfactuals will likely depend on our findings from steps 1 – 3 of the framework. For example, where we found competition was not present in a market with a regulated service, we would be unlikely to consider omission. We would likely instead focus counterfactuals on amending or adding a service.

2.46 Considerations when comparing the factual and counterfactual can be broad and potentially include:

2.46.1 our degree of certainty regarding what is likely to happen in the future;

2.46.2 the potential benefits (direct and indirect) of each;⁴⁰

2.46.3 the potential costs (direct and indirect) of each;

⁴⁰ A direct impact is defined as an impact that can be identified as resulting directly from the implementation or removal/simplification of regulation. Subsequent effects that occur as a result of the direct impacts, including behaviour change, are deemed indirect.

- 2.46.4 possible unintended consequences and asymmetric risk attached to the counterfactual – for example, we may conclude that the detrimental impact of deregulating too early outweighs the detrimental impact of keeping the regulation too long;
 - 2.46.5 any remaining supply or demand side constraints; and
 - 2.46.6 any remaining market power and its ability to be exercised.
- 2.47 We will then test the factual and counterfactual against the section 18 purpose, identifying which best promotes competition in telecommunications markets for the long-term benefit of end-users, taking into account the impact of any change on efficiency, incentives to innovate, and the risks faced by investors in new telecommunications services.⁴¹

Evidence for the Investigation

- 2.48 In our Approach paper, we set out the type of evidence we proposed to consider when undertaking the Investigation.⁴²
- 2.49 We received several submissions outlining additional evidence or information we should consider as part of the Investigation and, where relevant, have incorporated these into our analysis. Attachment A outlines the specific submissions and our responses.
- 2.50 We have used evidence related to the following (as examples) in the Investigation:
- 2.50.1 The copper footprint and recent trends in copper connections.
 - 2.50.2 The physical availability and capacity of alternative services.
 - 2.50.3 The quality and price of alternative services.
 - 2.50.4 End-user satisfaction and switching data.
- 2.51 This evidence has been primarily sourced from existing Commission data sources, and unless specified otherwise, is as of 30 June 2023, or for the 12 months to 30 June 2023. We primarily use data collected via the Rural Connectivity Study (**RCS**) and Annual Industry Questionnaire (**AIQ**), and refer to such data throughout the report as ‘Commission data’. We are aware of some limitations and quality issues in this data and have done our best to work around, minimise or otherwise mitigate these.

⁴¹ Telecommunications Act 2001, ss 18(2) and (2A). The High Court in *Chorus Ltd vs Commerce Commission* [2014] NZHC 690 at [34] has observed that section 18(1) is the “dominant” provision in section 18, and subsections (2) and (2A) “are specified for the purpose of assisting analysis under section 18(1)”. In this sense, subsections (2) and (2A) are not isolated considerations on their own. Rather, they form part of the consideration of whether competition is promoted for the long-term benefit of end-users.

⁴² Commission “Copper Services Investigation under section 69AH of the Telecommunications Act – Approach paper” (24 April 2024), chapter 10.

- 2.52 We also make use of the Measuring Broadband New Zealand (**MBNZ**) reports and our Annual Telecommunications Monitoring Reports (**AMR**). Where available, we have also used relevant information publicly available, such as Chorus's Quarterly Connections updates.
- 2.53 We are aware that our various data sources were collated at different points in time and that the data from the last RCS and AIQ is now over a year old. We have had regard to how current our data is when undertaking our analysis and will use more current data as it becomes available. We will use data recently collected for the 2024 RCS and AIQ, which is current to the end of June 2024, in finalising our recommendation.

Chapter 3 Draft recommendation on whether to alter Schedule 1

Chapter purpose and structure

- 3.1 This chapter sets out our draft recommendation regarding whether Schedule 1 should be altered with respect to the relevant copper services.
- 3.2 This chapter is structured as follows:
- 3.2.1 Summary of our draft recommendation (Table 3.1).
 - 3.2.2 A brief background to copper regulation.
 - 3.2.3 Assessment for each relevant copper service through:
 - 3.2.3.1 definition of the relevant service (step 1);
 - 3.2.3.2 the identification of alternatives (step 2);
 - 3.2.3.3 assessing competition in the relevant markets (step 3); and
 - 3.2.3.4 comparing the factual to the counterfactual with regard to the section 18 purpose (step 4).

Summary of our draft recommendation

- 3.3 Our draft recommendation is to deregulate the relevant copper services. These use the same copper infrastructure, and several can only be used to support the others. As such, our recommendations to deregulate each of the relevant copper services should be considered together as one recommendation.
- 3.4 Our draft recommendation is set out in Table 3.1.

Table 3.1 Summary of our draft recommendation

Relevant copper services	Draft recommendation
Chorus's unbundled bitstream access (UBA)	The UBA service should be omitted from Schedule 1 of the Act
Chorus's unbundled copper low frequency (UCLF)	The UCLF service should be omitted from Schedule 1 of the Act
Chorus's unbundled bitstream access backhaul (UBA Backhaul)	The UBA Backhaul service should be omitted from Schedule 1 of the Act
Chorus's unbundled copper local loop network backhaul – telephone exchange to interconnect point (UCLL Backhaul)	The UCLL Backhaul service should be omitted from Schedule 1 of the Act

Relevant copper services	Draft recommendation
Chorus's unbundled copper local loop network co-location (UCLL Co-location)	The UCLL Co-location service should be omitted from Schedule 1 of the Act

Background to copper regulation

- 3.5 As we outlined in more detail in our Approach paper,⁴³ the Act introduced a regulatory regime specific to the telecommunications industry in New Zealand. This was intended to support competition for the long-term benefit of end-users, including by providing access seekers with the ability to seek regulated access to the wholesale telecommunications services listed in Schedule 1 if commercial negotiations failed.
- 3.6 The relevant copper services were initially included in Schedule 1 in 2006 and 2011 due to Telecom's monopoly position and unwillingness to provide competitive access to its copper network. This allowed the Commission to determine price and non-price access terms for these services, to open up this bottleneck infrastructure.
- 3.7 The Commission's determination of these access terms is by way of an STD. The STDs for the relevant copper services outline how access seekers can obtain access to the specific services from Chorus, at what prices, and how all related elements such as operational requirements, billing, liability and fault management must work.⁴⁴
- 3.8 These STDs are supported in the regulatory regime by TSOs that enable specific services to be available and affordable, and Codes that set out specific obligations on providers where necessary.
- 3.9 We last undertook a review of the relevant copper services in Schedule 1 in 2016, finding that there were not reasonable grounds to commence an investigation, as these services continued to be relevant inputs to the most popular telecommunication services at a fixed location in retail markets.
- 3.10 However, telecommunications is a dynamic industry where new services are frequently introduced, and legacy services are withdrawn or retired over time. Since we last reviewed the relevant copper services, there have been a number of important developments in the industry. In particular, the majority of New Zealanders can now access modern fibre networks, and where they cannot, alternative technologies such as FWA and satellite are becoming more available.

⁴³ Commission "Copper Services Investigation – Approach paper" (22 April 2024), paragraphs 16 – 37.

⁴⁴ In its submission and cross submission on our Approach paper, Chorus outlines its position that determinations under Part 2 (such as the STDs) specify price and non-price terms of access to a network as and where it exists. Chorus states that such determinations cannot prevent retirement of the copper network. We do not agree that Determinations under Part 2 cannot prevent the exit of assets. Chorus "Submission on Copper Services Investigation Approach Paper" (22 May 2024), paragraphs 25, 25.1, 26 – 28 and 29 – 33; Chorus "[Cross submission on Copper Services Investigation Approach Paper](#)" (11 June 2024), paragraphs 9 – 13.

- 3.11 Chorus has also indicated its intention to retire the copper network by 2030 as demand for copper services continues to fall and the infrastructure nears end of life. It has stated an intention to make “the retirement of the copper network and transition to alternative services as smooth as possible for all end-users”.⁴⁵ Additionally, major RSPs have opted to stop offering copper voice or broadband products (or if they do offer such products, offer them only where alternatives are not available).
- 3.12 As a result of these industry changes, the role of the copper network, along with the wider competitive environment for voice and broadband services, has changed.

Primary vs ancillary services

- 3.13 The five relevant copper services are wholesale services that allow RSPs to provide broadband and/or voice services to end-users over Chorus’s copper network.
- 3.14 We set out our proposed description of the relevant copper services in our Approach paper. Attachment B outlines how the services are described in Schedule 1.
- 3.15 We did not receive any submissions on the service descriptions and have used them as proposed to form our draft recommendation.
- 3.16 There are two services (UBA and UCLF) that connect directly to end-users’ premises. The remaining three (UCLL Co-location, UCLL Backhaul and UBA Backhaul) are ancillary services that support the provision of UBA and UCLF.
- 3.17 Regulation stipulates that these ancillary services cannot be used for any purpose other than to support the provision of UBA and UCLF. As such, we have focused the Investigation on UBA and UCLF, and have only undertaken analysis of the ancillary services where appropriate based on the draft findings for UBA and UCLF.

Geographic area definition

- 3.18 We focus our Investigation on what we define as ‘rural copper areas’. This includes rural premises with a copper line enabling access to a copper-based service.⁴⁶ These number ~215,700 premises and are broken down into:
- 3.18.1 ~212,500 rural premises recorded by Chorus as having a copper line to the premises (coverage); and

⁴⁵ Chorus “Submission on Copper Services Investigation Approach Paper” (22 May 2024), paragraph 8a.

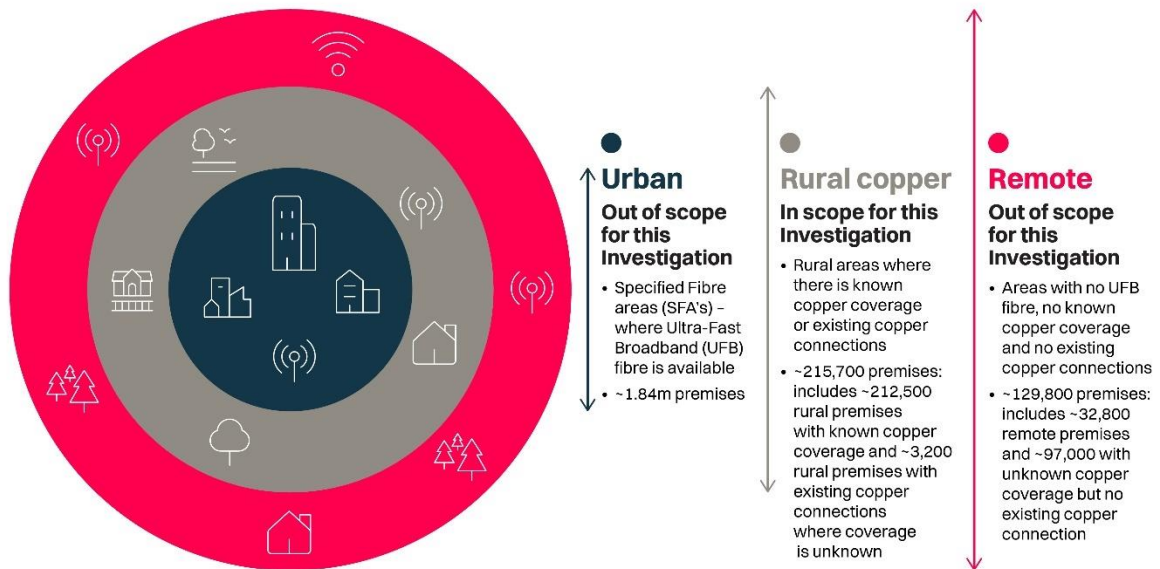
⁴⁶ Our data was sourced from multiple sources, including Chorus and the MNOs. There is not an exact alignment between the locations Chorus indicates have a copper line to the premises, and the premises which MNOs indicate have an active copper service. As a result, we include all rural premises where there is evidence of a copper line to the premises or have an active copper service to ensure we minimise relevant premises that are excluded.

- 3.18.2 ~3,200 additional rural premises which have an active copper-based service (but which are not captured in Chorus's coverage figures).⁴⁷
- 3.19 Supply of the relevant copper services by Chorus is regulated outside of specified fibre areas (**SFA**). SFAs are areas where fibre has been deployed under the Government's UFB initiative. There are approximately 1.84m premises in these areas. Copper regulation has already fallen away in SFAs by operation of law. We use the term 'urban' to describe these areas.
- 3.20 Accordingly, the starting point for the geographic area that is relevant for the Investigation is any area outside of SFAs. We use the term 'rural' throughout this report to describe such areas.⁴⁸
- 3.21 We understand there are approximately 345,500 rural premises in New Zealand. As noted above, ~215,700 of these can access a copper service or have an active copper connection, leaving 129,800 premises beyond the reach of the copper network. We have included the ~215,700 premises with copper access in our analysis.
- 3.22 In summary, we use the terms:
- 3.22.1 'urban' to refer to the 1.84m premises in SFAs (out of scope);
 - 3.22.2 'rural' to refer to the 345,500 premises that are beyond SFAs;
 - 3.22.2.1 'rural copper areas' to refer to rural premises that are connected to or covered by Chorus's copper network (~215,700 in scope of the Investigation); and
 - 3.22.2.2 'remote' to refer to the ~129,800 rural premises that lie beyond Chorus's copper network.
- 3.23 Figure 3.1 clarifies and illustrates these different areas.

⁴⁷ As stated previously, the data used for the analysis of geographic areas (coverage and actual connections) comes from different data sets. While we understand that these should align (especially premises which have a copper connection should be indicated as in copper coverage), this is not always the case. We have taken this approach deliberately, to highlight the assumptions we are making and the quality of the data we are working with. As such, beyond data quality issues, there are likely to be small discrepancies. We have done our best to minimise and mitigate the impact of any such discrepancies.

⁴⁸ We use this definition of 'rural' in the data we collected for the RCS as well as in the 2023 AMR and other telecommunications publications by the Commission. We appreciate this may differ from other definitions of 'rural', but believe this is most appropriate for the Investigation.

Figure 3.1 Urban, rural copper and remote areas



- 3.24 We do not have sufficient data to accurately split the coverage of copper voice services from the coverage of copper broadband (digital subscriber line (DSL)) services. We have therefore defined the coverage area to be the same for our analysis of all relevant services.
- 3.25 Within this broad geographic area, because differences in competition for copper-based voice and internet services exist, it would be beneficial to consider smaller geographic areas for the basis of the Investigation. This would have the effect of defining different geographic markets for the services described above.
- 3.26 In our Approach paper, we proposed further splitting rural areas into sub-geographic areas based on the number of alternatives present (by aggregating premises level data). We received some submissions on this approach that we summarise and respond to in Attachment A.
- 3.27 We are of the view that using the number of alternatives present (aggregating premises level data) remains the most appropriate way to split rural copper areas based on differences in competition. Therefore, this is the approach we have taken in forming our draft recommendation.

Chorus's unbundled bitstream access service

Draft recommendation

- 3.28 Our draft recommendation is that UBA is omitted from Schedule 1 of the Act.
- 3.29 The reasons for this draft recommendation are summarised below:

- 3.29.1 Demand for the wholesale service (UBA) is primarily derived by the demand for retail broadband services.
- 3.29.2 A range of retail broadband alternatives, including FWA and satellite, are available to consumers in rural copper areas.
- 3.29.3 These alternatives are similar (or better) to retail copper broadband services in price and performance.
- 3.29.4 The number of copper broadband connections in rural areas continues to decline as consumers switch to alternative services.
- 3.29.5 Competition exists for retail broadband services in rural copper areas and is likely to continue to grow in the future.
- 3.29.6 Omitting the service from Schedule 1 would best promote the purpose outlined in section 18 of the Act.

Defining the service (Step 1)

- 3.30 UBA is a wholesale service that enables access to, and interconnection with, that part of a fixed public data network that connects the end-user's building to a first data switch. The UBA service provides an access seeker with an internet-grade 'best efforts' bitstream service and enables an access seeker to offer its end-users DSL enabled services. The specific service description from the Act is included in Attachment B.
- 3.31 A DSL connection allows end-users to watch, listen, play, post, and chat over the internet. Different DSL technologies enable different end-user uses:
 - 3.31.1 Asymmetric Digital Subscriber Line (**ADSL**) is suitable for traditional services like web browsing, email, and basic video streaming, particularly when there is only one person online.
 - 3.31.2 Very High-Speed Digital Subscriber Line (**VDSL**) is more likely to be able to support applications that require more data, such as video conferencing and high definition streaming.

The market for UBA and identification of alternatives (Step 2)

- 3.32 We first consider the wholesale market, and any competitive constraints that any alternatives may provide. We then look at any indirect competitive constraints that may exist, including alternatives in a downstream retail market.

The wholesale broadband market

- 3.33 We consider the market in which the UBA service competes to comprise wholesale services that can be used to offer retail broadband services to end-users.
- 3.34 Three wholesale alternatives that we see as being included in the above market are available in rural areas:

- 3.34.1 FWA – some RSPs wholesale their FWA services.
 - 3.34.2 Non-cellular FWA – some wireless internet service providers (**WISP**) wholesale their digital microwave radio services.
 - 3.34.3 Satellite – four geostationary satellite (**GEO**) providers retail satellite services wholesaled by Kacific and Optus.
- 3.35 These alternatives are not reliant on regulation of UBA and, as such, any competitive constraint they provide on UBA currently would also be present were UBA not regulated.
- 3.36 Demand for wholesale broadband services is almost entirely derived from the demand for the retail broadband services for which they are used as inputs. RSPs generally offer a range of retail broadband services (over different technologies) with consumers making the decision regarding what services best suit their pricing, performance and availability needs.
- 3.37 Price increases in a wholesale input (such as UBA) are generally passed onto consumers (in part or fully),⁴⁹ rather than RSPs pivoting away from that wholesale service to another. As such, our view is that our analysis should focus on the retail broadband market, where demand for the wholesale regulated product is primarily derived.

The retail broadband market

- 3.38 We consider the retail broadband market to comprise services that provide end-users with a broadband connection.
- 3.39 Several retail broadband alternatives are available to varying degrees in rural copper areas, including:
- 3.39.1 FWA;
 - 3.39.2 Non-cellular FWA;
 - 3.39.3 Mobile data;
 - 3.39.4 Hybrid fibre-coaxial (**HFC**);
 - 3.39.5 Fibre – where non-regulated networks are present outside of SFAs;⁵⁰ and
 - 3.39.6 Satellite – GEO and low earth orbit (**LEO**).

⁴⁹ In the year to 30 June 2023 the wholesale price of copper broadband services increased 7%. Some RSPs passed on some or all of this price increase (Spark, 2Degrees, and Skinny), whereas other RSPs (One NZ and Slingshot) increased headline retail prices significantly above the wholesale price. Commission “2023 AMR” (15 August 2024) page 127.

⁵⁰ Throughout this report we use ‘fibre’ to describe unregulated fibre networks present outside of SFAs.

- 3.40 Our view is that these are all in the retail broadband market and could provide indirect competitive constraint on UBA.
- 3.41 These alternatives are not reliant on the regulated UBA and, as such, any competitive constraint they provide on retail copper broadband services currently (and indirectly on UBA), would also be present were UBA not regulated. As such, our analysis in step three applies were UBA regulated or not.

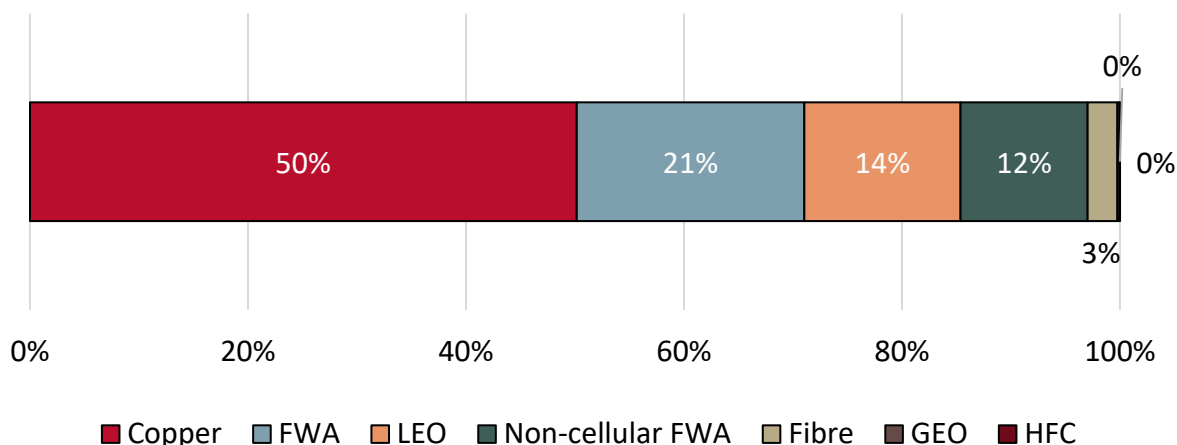
Analysis of competition (Step 3)

- 3.42 As demand for UBA is primarily derived from the downstream retail broadband market, for this analysis, we assess competition for retail broadband services, and the competitive constraint applied to broadband services provided using UBA as an input.
- 3.43 We consider that assessing competition in the retail broadband market requires analysis of:
- 3.43.1 the market structure;
 - 3.43.2 whether alternatives represent close substitutes; and
 - 3.43.3 actual switching behaviour.

Market structure

- 3.44 Chorus owns the copper network across the country, including in rural areas. It wholesales copper services to a number of RSPs who sell copper broadband services to end-users.
- 3.45 As at June 2023, broadband connections in rural copper areas were provided over copper, FWA, satellite or non-cellular FWA. There were also a number of fibre and HFC connections as shown in Figure 3.2.⁵¹

⁵¹ In remote areas (outside of SFAs and rural copper areas) where we have data, broadband connections were 35% non-cellular FWA, 33% LEO and 20% FWA (Commission data). We note that added figures may differ from those reported in the Commission 2023 AMR as we have used different data sources in places for each. Figure 3.2 and the figures in this footnote are fully from Commission data.

Figure 3.2 Share of broadband connections by technology in rural copper areas⁵²

3.46 For the ~215,700 premises in rural copper areas:⁵³

3.46.1 93% are within coverage of at least one FWA network, with 3% in coverage of a 5G network;⁵⁴

3.46.2 62% are within coverage of at least one non-cellular FWA network;

3.46.3 1% are able to access a fibre network;⁵⁵

3.46.4 0.5% can access One NZ's HFC network; and

3.46.5 any premises with sufficient line of sight to the sky can access both GEO and LEO satellite services.⁵⁶

⁵² Commission data. Only includes connections where we know the connection type. Around 4,600 unknown connections have been excluded from this data.

⁵³ Wireless coverage provided by MNOs and WISPs is based on predictive technical models specific to each network. This means actual service availability may differ for certain consumers. It is possible that consumers who find themselves outside the actual coverage of one network may be within the coverage of another. However, in all cases, consumers will be in satellite coverage where there is sufficient line of sight to the sky.

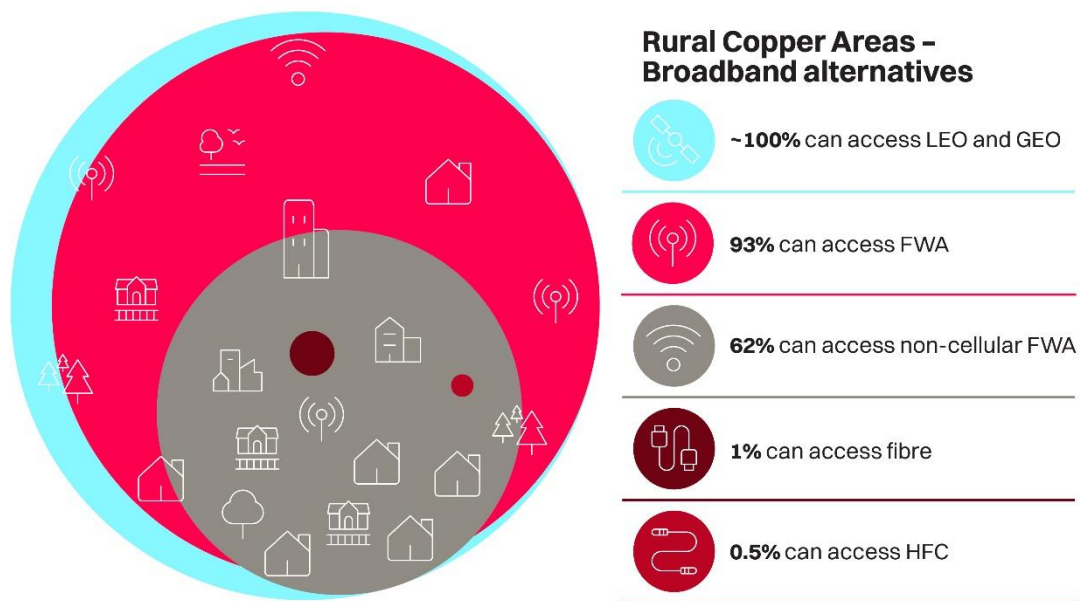
⁵⁴ FWA figures only includes premises with over 50% coverage. Approximately 46% of premises in rural copper areas are in coverage of FWA from all three MNOs, while 38% can access FWA from two MNOs.

⁵⁵ We note this figure is lower than the reported number of fibre connections in rural copper areas. This is due to both rounding and data quality issues (difference in quality between connection vs coverage data). Some of these connections may be new fibre connections by one of the LFCs that have not yet been included in SFAs as part of the annual SFA assessment.

⁵⁶ Throughout this report we note that “~100%” of premises in rural copper areas have access to these two alternatives. This figure will not be an absolute 100% as not all consumers will have the required line of sight to the relevant satellite/constellation in order to access a satellite service. We note that future congestion issues (if they arose) could further limit availability.

- 3.47 We have excluded mobile data from our coverage and price analysis as we do not view it as a close substitute to a copper broadband service. This is because data caps are common, coverage can significantly affect the quality of service and the cost per GB of data is generally much higher than on copper.⁵⁷ This is explained further in our performance analysis.
- 3.48 The coverage of different alternatives is (conceptually) highlighted in Figure 3.3.

Figure 3.3 Availability of broadband alternatives in rural copper areas



- 3.49 Taking a consumer perspective, Table 3.2 outlines the percentage of premises in rural copper areas which can access different numbers of retail broadband alternatives.

⁵⁷ For example, for the average monthly broadband usage on copper of 279GB per month, copper plans (both ADSL and VDSL) equate to between \$0.30 and \$0.42 per GB of data used. Most mobile data plans have a much lower data cap or limit on max speed data meaning to use 279GB per month would either be incredibly slow or have a huge cost. While several unlimited max speed mobile data plans have a similar per GB cost to copper (\$0.29 - \$0.32 per GB), these plans are subject to fair use policies which we could expect would not cover usage per month of 279GB. Consumers would likely have to switch plans or would be capped on usage.

Table 3.2 Availability of alternative broadband technologies⁵⁸

Number of broadband alternatives available	% of premises in rural copper areas who can access
1	~100%
2	~100%
3	96.8%
4	58.9%
5	1.9%
6	<0.1%

- 3.50 Nearly 97% of premises in rural copper areas are in coverage of three alternative broadband technologies (the two satellite technologies plus one other), while nearly 60% of premises are in coverage of four.
- 3.51 The capacity of alternative technologies can be an issue. For example, if a network in a local area is congested because the FWA tower serving that area has limited capacity, then new consumers may not be able to switch to that provider even though it is present in their area.⁵⁹ This actively limits the number of alternatives premises can access for broadband services.
- 3.52 We have had regard to these limitations in our analysis (in particular in paragraphs 3.46 – 3.50 and 3.127 – 3.131) by accounting for stop sells. We define availability as where a service is being sold as at 30 June 2023, so any premises which were unable to access the service on that date due to a stop sell are not included in the results.⁶⁰

⁵⁸ This table takes a consumer perspective by counting how many alternatives are available at each premises in rural copper areas. For example, 96.8% of premises that can access three broadband alternatives (LEO, GEO and one other) likely includes all 93% of premises that can access FWA, plus some other premises not in coverage of FWA but that can access another alternative (eg, a WISP non-cellular FWA service). Commission data.

⁵⁹ Providers of FWA services look to maintain a certain level of performance for existing consumers by managing congestion, such as by introducing stop sells for new consumers where needed. New consumers take up additional capacity which impacts the performance of all consumers of the service.

⁶⁰ Stop sells can change on a daily basis so the above provides an indication of the availability of alternatives at 30 June 2023 only. For FWA to be unavailable in an area, all three MNOs would have to have at least partial stop sells in the area. For context, of the limited stop sell data we have, at 30 June 2023 nationwide, 41% of FWA towers had no stop sells on any segments, 8% of FWA towers had stop sells on all segments and the remainder (51%) had stop sells on some but not all of the segments. If we just looked at towers likely to be in rural areas, the level of stop sells decreases, with 48% having no stop sells, 10% having stop sells on all sectors, and the remaining 42% having partial stop sells. We define full stop sells as all products on all sectors of a tower so there may be some towers included in the stats as no stop sells, when in fact one or more products (eg, 100GB plan) may be on a stop sell. There will be at least one product available on all segments on towers where we have indicated there are no stop sells on a tower.

3.53 Of the ~3.2% of premises (~7,000) in rural copper areas for whom the only alternative to copper broadband is a satellite service, we estimate that no more than 5,000 have an existing copper broadband connection. The remainder either currently use a different broadband technology (such as LEO) or do not have a broadband connection.

Close substitutes

3.54 We then consider whether the retail broadband alternatives represent close substitutes for the retail services using UBA as an input. This involves consideration of both price and performance characteristics.⁶¹

Price comparison

3.55 Table 3.3 summarises the upfront and monthly price of broadband services over a range of alternative technologies (including ADSL and VDSL in italics for comparison).

Table 3.3 Price of retail broadband plans by technology⁶²

Technology / Plan	Monthly price	Customer premises equipment (CPE)
<i>ADSL</i>	<i>\$85 – \$117</i>	<i>Included, BYO or can rent</i>
<i>VDSL</i>	<i>\$92 – \$117</i>	<i>Included, BYO or can rent</i>
4G FWA ⁶³	\$60 – \$156	Included or price varies
5G FWA	\$79 – \$88	Included or price varies
Non-cellular FWA	\$80 – \$159	Included or up to \$400
HFC	\$73	Included
Fibre 30 ⁶⁴	\$80	\$400
Fibre 50	\$60	Included

⁶¹ Consumers trade off price, performance and other characteristics when making purchasing decisions. As such, our view is that alternatives do not necessarily need to provide the same or better performance than the regulated service in question to be substitutes. Our analysis does consider varying price and performance characteristics from alternatives (eg, slightly worse performance/speed but much cheaper would still be seen as an alternative). However, as the copper network is approaching end of life, and with growing consumer demands for speed and data, our view is that alternatives should at least provide a similar level of performance, not one that is substantially worse, even at a cheaper price. For example, we would consider an alternative that is more expensive but provides a better service as a potential close substitute, but do not see an alternative that provides substantially worse performance but at a cheaper price as a close substitute.

⁶² Table 3.3 summarises the retail prices of residential broadband plans offered by a selection of retail providers using differing technologies. We cannot confirm the exact availability of these eg, if they are available in rural areas only or in urban only or both. As such, what a specific rural premises will have available will likely differ. All the plans summarised in Table 3.3 include unlimited monthly data. A number of plans include modems (typically on a 12-month contract) or a modem monthly rental (included in the retail monthly prices), or offer a modem for a one-off charge and no fixed-term contract. Source: Spark, One NZ, 2degrees, Slingshot, Gravity, Brdy, Farmside, Woi, Primo, Inspire, Aonet, Lightwire, Amuri, Mercury and Starlink websites (accessed 18 September 2024).

⁶³ While providers of FWA often have specific ‘rural’ plans, there is no consistent definition of rural, nor is rural defined as we have done by SFAs. As such, we have included a broad range of plans in our FWA analysis – we expect not all will be available in rural copper areas.

⁶⁴ These fibre plans are offered by WISPs who have established their own fibre networks in rural areas. We have used the commonly used names for each speed tier for ease of understanding.

Technology / Plan	Monthly price	Customer premises equipment (CPE)
Fibre 300	\$85 – \$95	Included
Fibre Max	\$109 – \$120	Included
GEO	\$100 – \$200	Depends on plan length – from \$495
LEO	\$159	\$599
LEO (deprioritised)	\$79	\$599

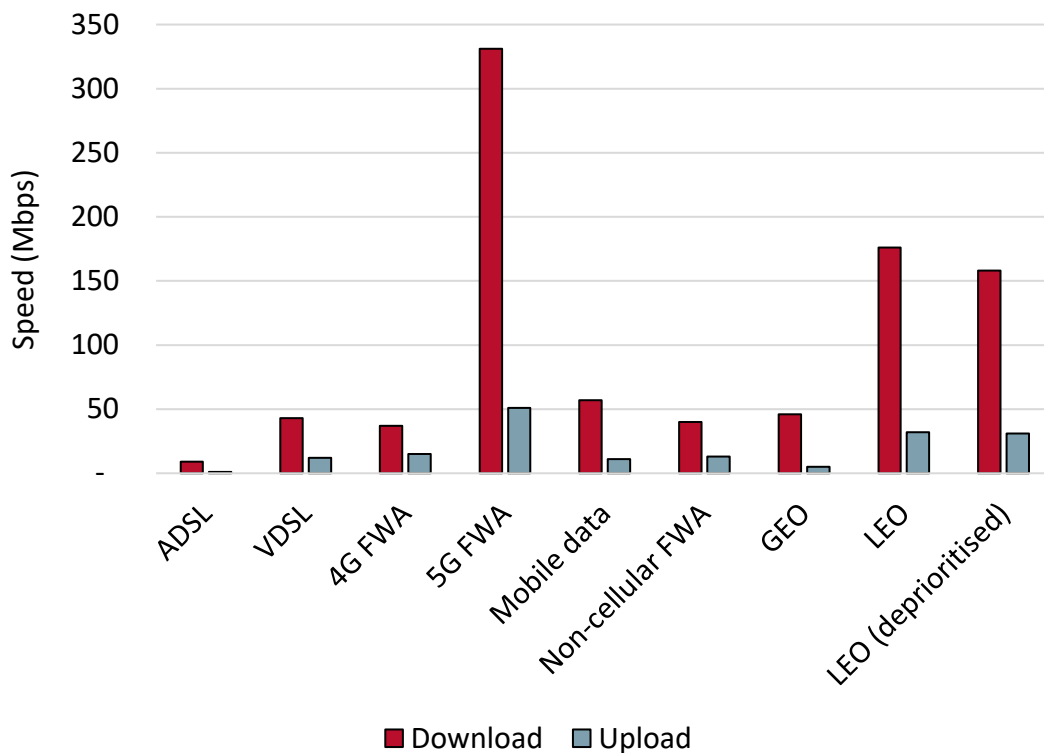
3.56 Various alternatives are available for a similar or cheaper price to retail copper broadband services. 4G FWA and non-cellular FWA plans range widely in prices, but have an average price similar to that of copper plans. While most alternatives include the specific CPE required (or the CPE can be rented), several broadband technologies such as non-cellular FWA and the two satellite technologies, GEO and LEO, have higher upfront costs (equipment and, when needed, installation costs). These units are sometimes available refurbished or on sale for a cheaper price.

Performance comparison

3.57 Figures 3.4 and 3.5 compare key performance characteristics between broadband services over various technologies.⁶⁵

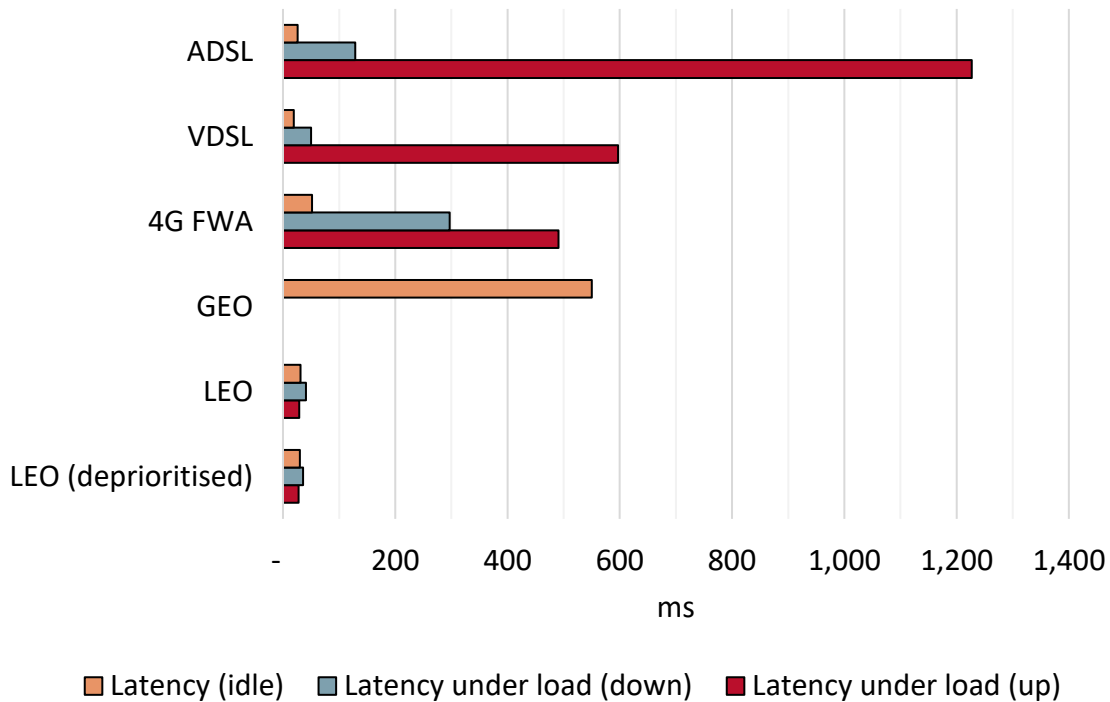
⁶⁵ We do not include Fibre or HFC in the figures and tables in performance comparison section due to their expected low future availability rurally, and to enhance comparison of the most widely available alternatives. For completeness, we do note their performance in footnotes to each figure or table.

Figure 3.4 Average peak download and upload speeds over different broadband plans and technologies⁶⁶



3.58 These graphs highlight that alternatives generally compare favourably with copper broadband connections with respect to performance characteristics. Aside from some specific GEO services, all of the alternatives provide faster peak time speeds than ADSL, generally with lower latency. Many of the alternatives also perform as well as, or better than VDSL, with 4G FWA and non-cellular FWA offering slightly slower download speeds at peak times.

⁶⁶ Figures 3.4 and 3.5 utilise actual performance data from the [September 2024 MBNZ report](#) and providers websites (reported performance) where the plan/technology is not included in the MBNZ report (GEO, non-cellular FWA and mobile data). Actual performance of these technologies may vary from that reported. Where possible we have used rural peak time data (peak time is between 7pm and 11pm on weekdays - we do not have peak time of year data). HFC provides average peak time speeds of 885Mbps (down) and 103Mbps (up), while the fibre plans differ by speed with Fibre 50 and Fibre 300 offering average peak download speeds as per their name (and up speed of 108Mbps for Fibre 300 – no reported figures for Fibre 50), while Fibre Max offers average peak speeds of 873Mbps (down) and 494Mbps (up).

Figure 3.5 Latency of broadband services over different technologies⁶⁷

- 3.59 The capacity concerns outlined in paragraph 3.51 can impact performance for existing consumers of a service, not just the ability of new consumers to access it. For example, while 5G FWA offers a step up from 4G FWA in terms of speed, current uptake is relatively low, and we are likely to see performance degradation as more users join the network and congestion issues arise.
- 3.60 All technologies can suffer from network dropouts that can impact real time applications such as video calls. Rural households tend to experience more and longer faults than urban households.⁶⁸ Table 3.4 highlights (where we have data) the scale of disconnections for broadband services over different technologies.⁶⁹

⁶⁷ Latency is the time it takes data to get from one point to another, eg, delay. A lower latency figure is better. Where possible, we took the latency data of technologies in rural areas. The GEO latency (peak time) is the average advertised latency on GEO provider websites. Actual performance will likely differ. MBNZ did not report a Fibre 50 latency under upstream load result. We do not have any data on latency of non-cellular FWA services but expect it to be similar to FWA results. Both HFC and fibre plans experience relatively low latency with peak, load down and load up for each around 13, 37 and 32ms (HFC) and 6, 33 and 20ms (fibre averaged values).

⁶⁸ Commission “2023 Telecommunications Monitoring Report” (15 August 2024), page 122.

⁶⁹ Commission data. Fault data taken between July 2021 and June 2023. While the disconnections figures are taken from nationwide connection data, we would expect figures to be similar across urban and rural areas.

Table 3.4 Disconnections and faults by technology and plan⁷⁰

Technology	Disconnections (national daily median)	Average number of faults per rural connection	Rural connections that experienced one or more faults	Average rural fault duration (mins)
ADSL	8.8	0.6	38.5%	1,231
VDSL	1.7		42.2%	959
4G FWA	4.4	–	–	–
LEO	2	2.06	100%	201
LEO (Deprioritised) ⁷¹	1.9	–	–	–

- 3.61 ADSL, VDSL, 4G FWA and LEO all experienced over one disconnection on average a day across the country.⁷² While less than half of ADSL and VDSL connections experienced at least one fault between July 2021 and June 2023, the faults that did occur took a much longer time to resolve due to the nature of the network and aging infrastructure.
- 3.62 Two known faults affected all NZ LEO consumers (as is possible with satellite technology). However, LEO faults were rectified on average much faster (210 mins) than those affecting copper services (1,231 mins for ADSL and 959 mins for VDSL).⁷³
- 3.63 Services over technologies that experience capacity issues often include data caps in order to manage usage. FWA and non-cellular FWA plans regularly contain data caps, while data caps are also present across some GEO and fibre plans too.

⁷⁰ Disconnections taken from the September 2024 MBNZ report (data from July 2024) while average number of faults, connections that experienced one or more faults and average fault duration taken from Commission data covering July 2021 and June 2023. We cannot tell how many customers are impacted by FWA faults at a network level because some customers could divert to another nearby tower (if one exists in range). HFC experienced 11 disconnections (there was no HFC fault data), while the fibre plans averaged 0.3 disconnections and 0.07 faults per rural connection. We have no 5G FWA data.

⁷¹ The LEO disconnections and faults data applies to the deprioritised services too, but was collected before the deprioritised service had been introduced to NZ.

⁷² All disconnections relate to data remaining within NZ. Taking the median obscures the extremes of performance for each plan. While the median ADSL and FWA results are comparable, ADSL connections are more likely than others to have disconnection rates far above the median, whereas FWA plans are more likely to have results close to the median. While the disconnections figures are taken from nationwide connection data, we would expect figures to be similar across urban and rural areas.

⁷³ Commission data.

- 3.64 Table 3.5 outlines the data caps on broadband plans available over alternative technologies in rural areas. For comparison, copper broadband services (ADSL and VDSL) typically offer unlimited data, with the average copper broadband consumer using 279GB of data per month.⁷⁴

Table 3.5 Data caps on select broadband technologies⁷⁵

Technology	Data caps (GB)		Unlimited plan(s) available?
FWA	40	200	Yes – 12 plans ⁷⁶
	60	300	
	120	400	
	170	1000	
Mobile data	Various – from 100MB to 25GB		Yes – 3 plans
Non-cellular FWA	60	300	Yes – 10 plans
	150	1000	
GEO	30	120	Yes – 8 plans
	50	180	

- 3.65 Unlimited data plans are available across all of the rural broadband technologies considered, with all 5G FWA, LEO and HFC plans currently having unlimited data. Both FWA and non-cellular FWA services offer plans with data caps above the average copper usage.
- 3.66 Mobile data plans generally have relatively low data caps. Where plans contain endless data, speeds are dropped to a very low speed, often 1.2Mbps, once a certain data limit is reached. This significantly impacts consumer experience, providing speeds slower than ADSL. Two endless plans identified had max speed data caps above 40GB, and three unlimited max speed data plans exist. These unlimited plans come with fair usage policies.⁷⁷
- 3.67 Some GEO service providers also use progressive speed shaping to manage usage and capacity. This drops the speed of a broadband service in steps as usage reaches preset levels. This allows providers to better manage data use but impacts consumer experience. This shaping is primarily found on unlimited data GEO plans.⁷⁸

⁷⁴ Chorus “[Q4 FY23 Connections Update](#)” (11 July 2023), page 8.

⁷⁵ While there were nine unlimited fibre plans available, we also saw fibre plans with data caps of 65GB, 200GB and 500GB per month. No HFC or 5G FWA plans had data caps. Data taken from provider websites on 18 September 2024.

⁷⁶ As noted previously, we have included a wide range of FWA plans in our analysis as we cannot be sure what plans are available in rural copper areas. The FWA plans providers specify as rural on their websites are more likely to have data caps and often come at a higher price than urban plans.

⁷⁷ We expect the fair use policies would be breached if the consumer used an equivalent amount of data as the average copper broadband consumer.

⁷⁸ Starlink’s deprioritised plan operates in a similar way, with users deprioritised compared to residential plan users at peak times.

- 3.68 However, GEO plans generally also vary based on speed, with a proportionate data cap for the speed of the plan. The FWA plans are mostly at best efforts speed, with consumers making purchasing decisions based on the amount of data they believe they need.
- 3.69 99% of premises in rural copper areas are in coverage of at least one mobile network operator (**MNO**) and are thus able to access mobile data as an alternative broadband service.⁷⁹ However, while providing similar speeds to VDSL (and capable of providing faster speeds in some situations such as where 5G is available), mobile data plans in NZ regularly come with low data caps (and / or speed limits). These are generally significantly below that which are offered and used by consumers of copper broadband services.
- 3.70 Our view is that mobile data does not represent a close substitute to retail copper broadband services. Consumers with very limited internet connectivity needs, who are regularly in mobile coverage, may view it as a viable alternative. However, our view is that for the majority of consumers in rural copper areas, particularly those with multiple devices connected (such as families), it is not. This is supported by consumer usage information. Only around 1.5% of residential mobile plans are data only, despite increasing data on mobile plans.⁸⁰ While we cannot tell if these consumers are using their mobile data as a replacement for a broadband connection, this low figure suggests consumers do not see mobile data as a close substitute for a typical broadband connection.
- 3.71 Our view is that broadband services offered over all of the other alternative technologies represent close substitutes for copper retail broadband services.

Consumer switching behaviour

- 3.72 Copper broadband connections outside of SFAs have decreased by 18% in the year to 30 June 2023, down from 110,000 to 90,000 a year later.⁸¹ This trend has been seen for a number of years with Chorus reporting a steady decline in the number of rural copper connections in its quarterly connections updates.⁸²

⁷⁹ Spark, One NZ and 2Degrees are the three MNOs in New Zealand.

⁸⁰ Commission data noting the results come from differing sample sizes for different MNOs. For context, as of June 2020, 16% of Australians were mobile-only for internet, while 15% of United States adults were mobile-only for internet as of 2023.

⁸¹ Commission 2023 AMR from Commission data.

⁸² There are only 69,000 copper broadband connections remaining outside of SFAs at 30 September 2024. See [Chorus Investor announcements](#) for the quarterly connections updates.

- 3.73 This reduction in copper connections seems to be a result of a switch in demand to FWA or satellite services, with satellite the fastest growing technology following the entry of Starlink.⁸³ Nationwide, satellite numbers increased 208% in the year to 30 June 2023, from 12,000 to 37,000 connections, primarily driven by Starlink. Around 25,000 of these are in rural copper areas, with a further 9,000 in remote areas of the country where neither regulated fibre nor copper is available.⁸⁴ There are indications that at least one more LEO provider, Amazon's Project Kuiper, will enter the New Zealand market in the near future.⁸⁵ This would provide competition for LEO services and offer consumers more options for broadband services.
- 3.74 Our Customer Satisfaction Monitoring survey provides some insight into aspects that consumers value in their broadband service and some reasons for switching provider.
- 3.75 Data from this survey shows rural consumers are less satisfied with their broadband services than their urban counterparts, with 68% of rural broadband consumers satisfied with their service compared with 78% of urban consumers.⁸⁶ This difference is seen consistently across all of the measured elements of broadband service such as speed and stability, and billing.
- 3.76 The most prominent issues affecting rural consumers compared to their urban counterparts included:
- 3.76.1 range of products (52% vs 73%);
 - 3.76.2 coverage and availability (59% vs 80%); and
 - 3.76.3 speed and stability (60% vs 77%).
- 3.77 These differences are to be expected, with rural consumers traditionally having limited broadband options, including some that are unable to provide consistently fast speeds relative to urban options.
- 3.78 Figure 3.6 outlines the satisfaction levels of rural consumers across three different broadband technologies. Aside from billing, rural consumers are least satisfied with copper across the range of broadband plan elements. FWA mostly outperforms copper, while consumers are most satisfied with satellite services across all plan elements.

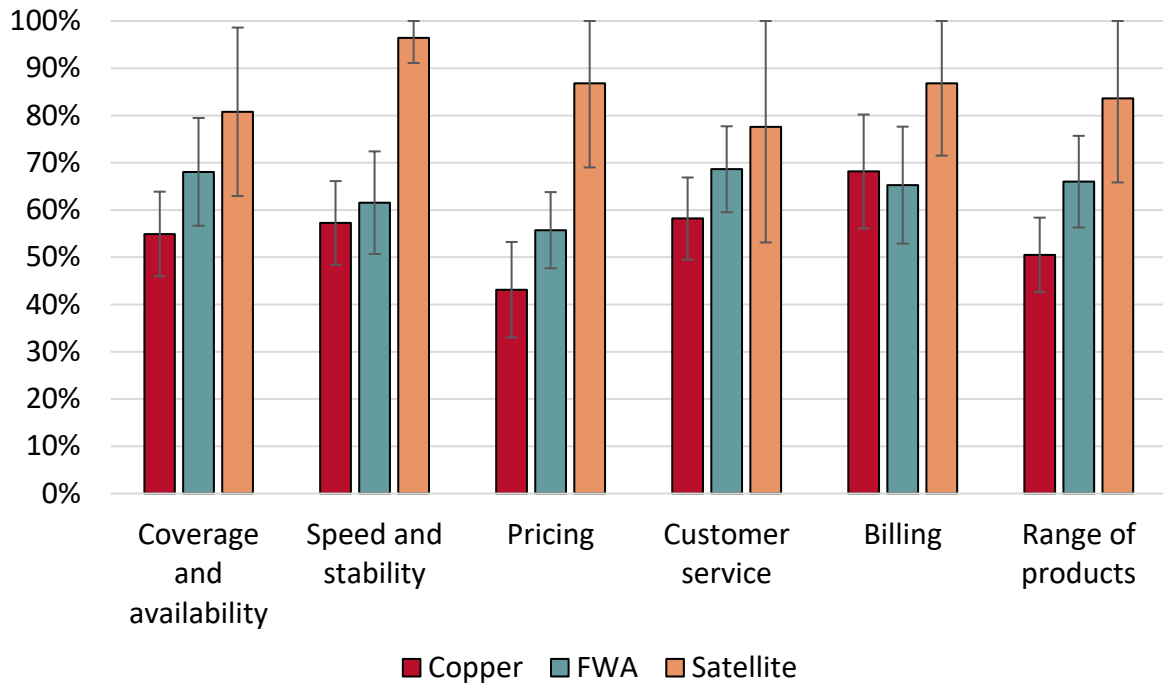
⁸³ Commission 2023 AMR, page 109.

⁸⁴ Around 8% of the total satellite connections (~3000) are in urban areas. Commission data.

⁸⁵ In July 2024, Toitū Te Whenua Land Information New Zealand approved the acquisition of a long term lease on land by Project Kuiper to support its satellite rollout.

⁸⁶ Commission 2023 AMR, page 134. Results from Customer Satisfaction Monitoring survey.

Figure 3.6 Rural consumer satisfaction levels with select broadband technologies



3.79 Switching data supports this higher satisfaction with satellite services. When looking at rural households that switched provider, 42% switched to an RSP outside the top 3 (likely Starlink).

Competition summary

3.80 Copper connections have been reducing and now make up just half of broadband connections in rural copper areas. A number of alternatives exist and are used by consumers. These alternatives are widely available, with most premises in coverage of a FWA network, even accounting for stop sells. Over half of premises are also able to access a non-cellular FWA service from a local WISP, and GEO and LEO broadband services are available to the majority of premises (those that have line of sight to the relevant satellite(s)). We expect this to continue into the foreseeable future, with another LEO provider likely to enter the market, and FWA continuing to be rolled out further around the country.

- 3.81 Our expectation is that alternatives with low availability currently (primarily 5G FWA, fibre and HFC) will not grow significantly in rural areas in the foreseeable future. The high costs to roll-out HFC and fibre networks means the economic case is hard to make for roll-out in low density rural regions. 5G FWA will initially be rolled out in more densely populated areas which likely have regulated fibre already (ie, are urban not rural). However, we do expect some rural consumers on the fringe of urban areas to be able to access 5G FWA as it is rolled out across the country.⁸⁷
- 3.82 On the whole, these alternatives compare favourably to broadband services over copper with regard to ongoing monthly cost. Several alternatives have higher upfront costs (LEO, GEO and some non-cellular FWA services) due to the technology used and possible installation required. Some equipment is sometimes able to be purchased on sale or refurbished at a cheaper price. These upfront costs may come down over time as new competitors enter.
- 3.83 Performance wise, most of the alternatives perform similarly to or outperform ADSL and VDSL broadband services. Download speeds are slightly slower for 4G FWA (6 Mbps) and non-cellular FWA (3 Mbps) compared to VDSL, but others far exceed speeds available on services over copper. Also, due to being an old network approaching end of life, copper services generally suffer more and longer disconnections and faults, impacting consumer experience.
- 3.84 While we do not have data on the actual performance of non-cellular FWA broadband provided by WISPs, we believe these services offer similar performance levels as FWA. This represents a viable alternative to copper broadband for the 62% of premises in rural copper areas who can access such services.
- 3.85 Capacity constraints (in the form of the inability of a consumer to access a new connection or the degraded performance of an existing connection) will be an ongoing issue for some alternatives (with this being more prominent on FWA, non-cellular FWA and GEO). However, as much as possible, we have factored this into our analysis and still see wide availability. These technologies utilise data caps and/or progressive speed shaping to manage capacity, demand and performance. Unlimited data plans are still readily available across all alternatives, albeit at a higher price than capped plans.
- 3.86 Copper connections outside of SFAs decreased in the last year, maintaining a trend seen for several years as consumers migrate from copper to alternatives. Satellite has been the fastest growing technology following the entry of Starlink.

⁸⁷ As part of the commercial agreements to access spectrum for 5G, MNOs are required to roll out 5G to around regional 55 towns across New Zealand. While fibre is available in all of the planned towns (thus making them urban not rural), we expect rural consumers on the outskirts of these towns will be in range of the 5G services and thus will be able to access a 5G FWA service. See "[Govt to speed up 5G rollout to regional towns](#)" (12 May 2023).

- 3.87 Consumers of copper broadband services clearly see alternatives as attractive options. Rural consumers are most satisfied with satellite broadband services, followed by FWA, with those on copper least satisfied.
- 3.88 Our view is that all of the alternatives (aside from mobile data) represent close substitutes for copper broadband services, with LEO the most attractive, providing a high competitive constraint on copper broadband services. We see GEO, 4G FWA and non-cellular FWA providing a moderate competitive constraint while 5G FWA, fibre and HFC, despite the substantial performance improvement over copper, are so limited in their availability that they only offer low competitive constraints. Due to the limitations of mobile data discussed above, our view is that it only offers a limited competitive constraint.
- 3.89 Overall, our view is that competition exists in the market for retail broadband services in rural copper areas. With the likely entry of Project Kuiper as a competing LEO service and the continued expansion of FWA, including 5G FWA, we expect this competition to continue into the foreseeable future.

Identifying what state best gives effect to the section 18 purpose (Step 4)

- 3.90 Our final step is to determine whether, in light of our findings in relation to competition, a telecommunications service should be added to Schedule 1; or in respect of UBA, whether an amendment to, or omission from, the Act is required to best give effect to the section 18 purpose.
- 3.91 Section 18 outlines that the purpose of Part 2 of the Act (where Schedules 1 sits and within which UBA is a designated service) is to “promote competition in telecommunications markets for the long-term benefit of end-users of telecommunications services within New Zealand”.
- 3.92 It also outlines that when determining whether any act or omission may contribute to or promote competition in telecommunications markets for the long-term benefit of end-users, we must consider:
- 3.92.1 the efficiencies that will result, or will be likely to result;⁸⁸ and
- 3.92.2 the incentives that exist for, and the risks faced by, investors in new telecommunications services.⁸⁹
- 3.93 In this section, we compare the factual (the future state with existing regulation) to the counterfactual (the future state without regulation) and consider which would best give effect to the section 18 purpose.

⁸⁸ Telecommunications Act, cl 18(2).

⁸⁹ Telecommunications Act, cl 18(2A).

- 3.94 As set out above, we expect that the competition we see in the retail broadband market (in rural copper areas) to continue into the foreseeable future. We also see a number of competitive trends or developments occurring in the rural retail broadband market (that further reduce copper's role) irrespective of whether regulation is retained or removed. These are:
- 3.94.1 the continuing trend of consumers in rural areas switching to wireless alternatives (and higher satisfaction levels on such alternatives);
 - 3.94.2 the commercial decisions of RSPs to cease offering new copper connections and active promotion of their own wireless services (where available); and
 - 3.94.3 the likely entry of new LEO operators into the market, notably Project Kuiper, bringing further competition and choice for rural consumers.
- 3.95 Therefore, regardless of whether regulation remains or not, we expect the competitive constraint on UBA to continue, and likely strengthen further. Where competition exists in the relevant markets, and is expected to remain or grow, regulation is likely no longer required to promote competition in those markets for the benefit of end-users.
- 3.96 Our view is therefore that the appropriate counterfactual is deregulation of UBA (by omitting it from Schedule 1). Adding a service to the Act, or amending the description of UBA in the Act, would not best meet the purpose set out in section 18 as it would retain (or even increase) regulation for a service where competition is currently present and is expected to increase in the near future. Retaining regulation also risks distorting outcomes by requiring Chorus to maintain a geographically dispersed network for a small number of remaining users. This would likely become increasingly uneconomic for Chorus, and not best promote the section 18 purpose.
- 3.97 Our assessment uses this context as a baseline for both the factual and counterfactual.

Factual assessment (the future state with existing regulation)

- 3.98 An ongoing regulatory obligation would require Chorus to continue to invest and maintain the copper infrastructure required to provide UBA for a reducing number of consumers.⁹⁰ The investment case for broadband services over copper is increasingly challenging, with any new capital investment unlikely to be recovered from consumers who remain using a copper broadband service. This scenario is likely uneconomic and could impose inefficient investment costs on Chorus.

⁹⁰ We note the view Chorus outlined in its submission and cross submission that Determinations under Part 2 cannot prevent the exit of assets. We disagree.

- 3.99 Under the factual, regulation would continue to provide a wholesale price cap. On one hand, the price cap provides a degree of discipline on retail broadband prices that benefits consumers who continue to purchase copper-based broadband. On the other hand, the current price cap on copper services in rural copper areas was set with reference to a national replacement cost model in 2015, and has been adjusted for inflation in recent years. As a result, the price cap is unlikely to reflect the costs of a rural copper network, and may be distorting incentives to invest by other network operators (such as non-LEO network operators).
- 3.100 Copper broadband services suffer a higher number of faults, with lengthy resolution times, compared with alternatives. As continued regulation would require Chorus to continue supporting the infrastructure for UBA, consumers would have less (quality based) incentive to shift to an alternative service that could provide them a better experience than services over the aging copper network.⁹¹

Counterfactual assessment (the future state without regulation)

- 3.101 Under the counterfactual, where UBA is deregulated, Chorus would no longer be required to continue to maintain investment in the copper infrastructure used to provide UBA.⁹² As a result, it could be expected to minimise, or more likely cease, such investment. Chorus has indicated that it plans to retire the copper network and so we would expect specific infrastructure used to provide UBA services would be retired and UBA services would be phased out as rural end-users transition to better alternatives. The savings made from this reduction in investment in the copper network represents efficiencies for Chorus.⁹³
- 3.102 These savings would be much greater if all of the relevant copper services were deregulated. As UCLF and UBA are primarily provided over the same physical infrastructure, deregulation of both of these (as well as UCLL Co-location, UCLL Backhaul and UBA backhaul as ancillary services) would allow Chorus to cease investment in all of the copper network in line with its stated intention.
- 3.103 If Chorus withdrew UBA services following deregulation, consumers will be required to switch to an alternative, incentivising investment in these technologies. Chorus has said that it is “committed to making the retirement of the copper network and transition to alternative services as smooth as possible for all end-users”.⁹⁴
- 3.104 Deregulation, when regulation is no longer needed, also promotes regulatory certainty, and thus supports investor confidence.

⁹¹ We expect consumers would still face higher prices as wholesale and retail prices would likely continue to increase. This would incentivise consumers to switch technologies from a price perspective.

⁹² We note that while the TSO is not copper based, Chorus may use the copper network to meet its network obligation. As such, TSO lines may not see a ceasing of investment or maintenance like non-TSO lines were deregulation to occur.

⁹³ Chorus outlined some of the potential cost savings and net proceeds from the retirement of its copper network in a recent investor presentation. Chorus “[Investor Day 2024 - Presentation](#)” (2 December 2024), see slides 71, 77 and 80.

⁹⁴ Chorus “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraph 8c.

- 3.105 In the absence of regulation, Chorus would be able to price the wholesale service at a level it views as economic (it states this is higher than the current geographically averaged price due to urban copper withdrawal and overall declining connection numbers).⁹⁵ This would raise the cost of a wholesale service, likely further raising the price of retail copper broadband services. With its intention to retire the network, such wholesale price rises (for services still existing before the network was fully retired) would likely incentivise consumers to move off copper to an alternative, incentivising investment in these technologies and, potentially, further entry to the market.
- 3.106 Consumers unwilling or unable to switch to an alternative would be negatively impacted. However, as our competition analysis has shown, in almost all cases, consumers have multiple broadband alternatives available to them that provide a better quality service, at a similar or cheaper price. Copper pricing that incentivises positive behavioural change in consumers (through switching), is likely to be beneficial for them from a connectivity and financial perspective in the longer term.

Overall assessment of the regulatory state that best gives effect to the section 18 purpose

- 3.107 Overall we are of the view that regulation of UBA is no longer necessary to best give effect to the section 18 purpose and promote competition in telecommunications markets for the long-term benefit of end-users. Competition exists and is expected to continue in the relevant markets, and a future state where regulation no longer applies would provide improved efficiencies and incentives to invest.
- 3.108 Our draft recommendation is therefore that UBA is omitted from Schedule 1 of the Act.

Chorus's unbundled copper low frequency service

Draft recommendation

- 3.109 Our draft recommendation is that the UCLF service should be omitted from Schedule 1 of the Act.
- 3.110 The reasons for this draft recommendation are summarised below:
- 3.110.1 Demand for the wholesale service (UCLF) is primarily driven by the demand for retail voice services.
 - 3.110.2 A range of retail voice alternatives are available to consumers in rural copper areas.
 - 3.110.3 Most of these alternatives are similar to retail copper voice services in price and performance.

⁹⁵ A commercial decision by Chorus to price at an uneconomic level is another possible, albeit unlikely, scenario. If this was the case, consumers would not be as negatively impacted.

- 3.110.4 The number of regulated copper voice connections in rural areas continues to fall as consumers switch to alternative services.
- 3.110.5 Competition exists for retail voice services in rural copper areas and is likely to continue to grow in the future.
- 3.110.6 Omitting the service from Schedule 1 would best promote the purpose outlined in section 18 of the Act.

Defining the service (Step 1)

- 3.111 UCLF is a wholesale service that enables access to, and interconnection with, the low frequency in Chorus's copper local loop network. This service connects the end-user's premises to the handover point in Chorus's exchange. UCLF supports end-users (via a service purchased from an RSP) to make and receive voice calls over a landline. The specific service description from the Act is included in Attachment B.

The market for UCLF and identification of alternatives (Step 2)

- 3.112 We first consider the wholesale market, and any competitive constraints that exist. We then look at any indirect competitive constraints that may exist, including in a downstream retail market.

The wholesale voice market

- 3.113 Several wholesale alternatives, which we see as being included in the above market, exist:

- 3.113.1 Baseband (several variants) – a commercial alternative to UCLF offered by Chorus that uses the same copper infrastructure as UCLF.

- 3.113.2 Mobile (via mobile virtual network operators).

- 3.114 These alternatives are not reliant on regulation of UCLF, and as such, any competitive constraint they provide on UCLF currently would also be present were UCLF not regulated.⁹⁶

- 3.115 Similar to how demand for UBA is determined by demand for retail copper broadband services, the demand for these wholesale voice services is almost entirely driven by demand for the retail voice services for which they are an input. RSPs generally offer a range of retail voice services (over different technologies), with consumers making the decision regarding what services best suit their pricing, performance and availability needs.

⁹⁶ If Chorus retired the copper network as it has indicated is its intention, baseband would no longer be offered.

3.116 Price increases in a wholesale price input (such as UCLF) are generally passed onto consumers directly, rather than RSPs pivoting away from that wholesale service to another. As such, our view is that our analysis should focus on the retail market, where demand for the wholesale regulated product is primarily derived.

The retail voice market

3.117 We consider the retail voice market to comprise services that provide end-users with a voice connection. Our view is that the fixed line nature of a copper voice service and the power source for the service are not defining characteristics of the market.⁹⁷

3.118 Several retail voice alternatives to retail copper voice services (that use UCLF as an input) are available in rural copper areas, including:⁹⁸

3.118.1 Mobile voice;

3.118.2 Voice over Internet Protocol (**VoIP**);

3.118.3 Wi-Fi calling; and

3.118.4 Over-the-top (**OTT**) applications.

3.119 VoIP, Wi-Fi calling and OTT are available over an internet connection, including over technologies described above in the UBA analysis, such as:

3.119.1 FWA;

3.119.2 Non-cellular FWA;

3.119.3 HFC;

3.119.4 Satellite (GEO and LEO); and

⁹⁷ We note concerns that copper is seen as the technology that continues to operate in a power outage at a premises (localised outage), therefore providing enhanced resilience and connectivity in emergencies. In our view, the ability and longevity of a technology to remain operational in a power outage is not a characteristic that defines the market and so we do not consider it in our analysis. This ability can vary significantly by technology, by the location and extent of a power outage, and also on a premises by premises basis. For example, copper landlines are powered from cabinets or exchanges which themselves have limited battery backup in the event of an outage. We do consider general fault information in our analysis.

⁹⁸ The MNOs have all signed agreements with satellite operators (Spark and 2Degrees with Lynk, and One NZ with SpaceX) with the intention of offering direct-to-cell services. MNOs plan to start with text services and may extend to voice calls and basic data services. This technology would represent another retail service in both the retail broadband and retail voice markets (separate to mobile data and mobile voice as coverage differs and is not available to all mobile users). However, as the services are still in development, with limited details regarding timing, pricing and performance, we have not included it as an alternative for our analysis of UBA or UCLF. One NZ "[Redefining mobile coverage in Aotearoa](#)". 2degrees "[2degrees announces satellite-to-cell trial with global LEO satellite provider Lynk](#)" (3 April 2023). Spark "[Spark sends first satellite text message and announces plans for a network of satellite-connected cell towers](#)" (29 November 2023).

3.119.5 Fibre.

- 3.120 Our view is that these alternatives are all included in the retail voice market described above and could provide indirect competitive constraint on UCLF.
- 3.121 These alternatives are not reliant on regulation of UCLF and, as such, any competitive constraint they provide on retail copper broadband services currently (and indirectly on UCLF), would also be present were UCLF not regulated. As such, our analysis in step three applies were UCLF regulated or not.

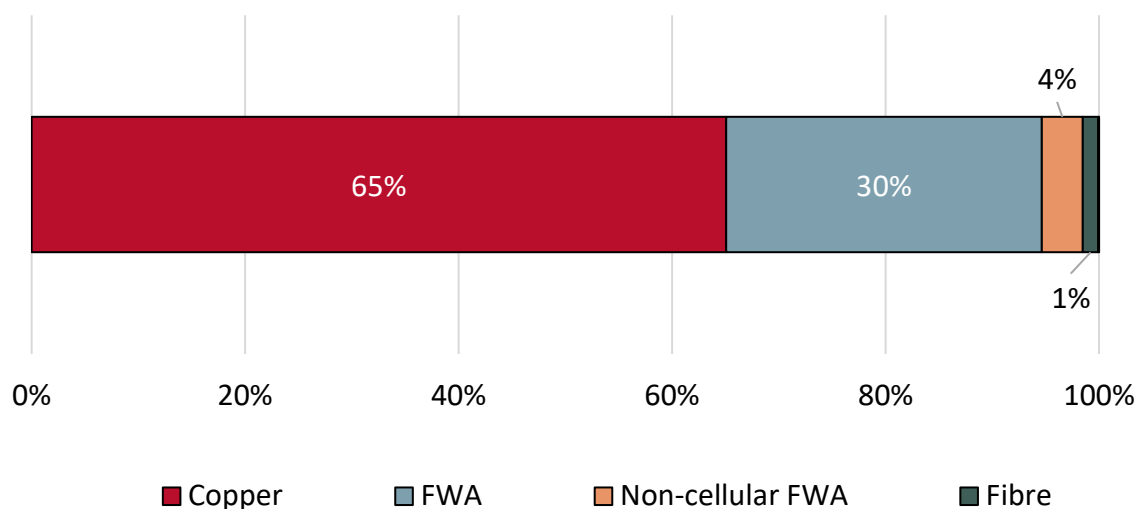
Analysis of competition (Step 3)

- 3.122 As demand for UCLF is primarily derived from the downstream retail voice market, we assess competition for retail voice services and the competitive constraint applied to voice services provided using UCLF as an input.
- 3.123 We consider that assessing competition in this market requires analysis of:
- 3.123.1 the market structure;
 - 3.123.2 whether alternatives represent close substitutes; and
 - 3.123.3 actual switching behaviour.

Market structure

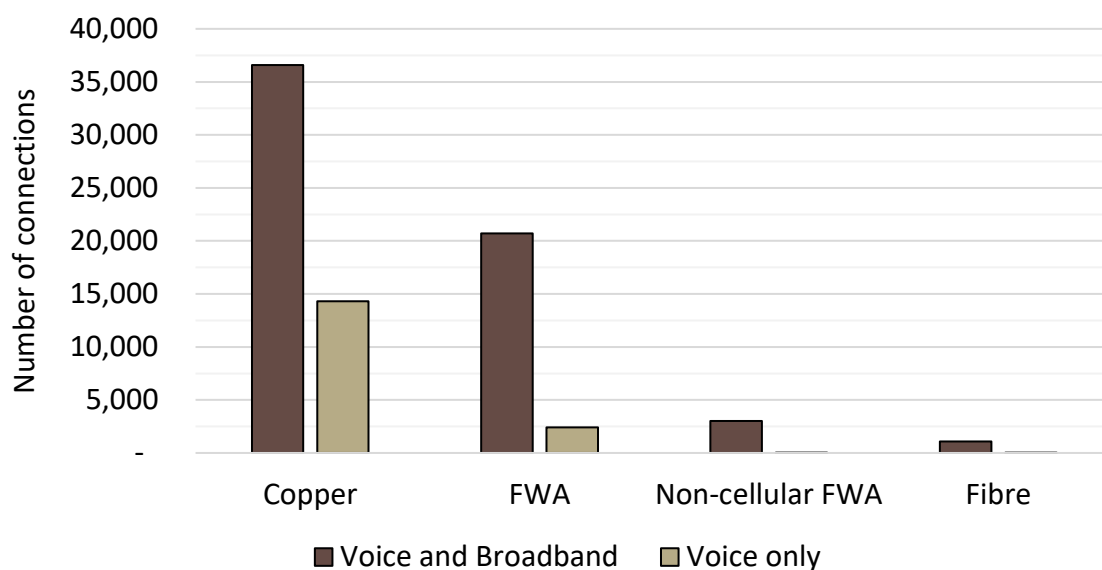
- 3.124 As we outlined in our UBA market structure section, Chorus owns the copper network across the country, including in rural areas. It wholesales UCLF to a number of RSPs who sell retail copper voice services to end-users.
- 3.125 Figure 3.7 highlights that, as of June 2023, voice connections in rural copper areas were primarily either over copper or FWA. The remaining connections were primarily across non-cellular FWA or fibre.

Figure 3.7 Share of voice connections by technology in rural copper areas^{99, 100}



3.126 The majority of these voice services are coupled with broadband services, with approximately 21% of voice connections (across all technologies) in rural copper areas being voice only. This is consistent when we break the plan type down by each of the different technologies, seen in Figure 3.8.

Figure 3.8 Voice connections in rural copper areas by technology and plan type¹⁰¹



⁹⁹ Commission data. This only includes connections where we know the technology and plan type. As such, figures will differ slightly from other publications such as the AMR and Chorus's Quarterly connections updates.

¹⁰⁰ We have excluded the small number of GEO connections from this graph due to the low number of connections.

¹⁰¹ We have excluded the small number of GEO connections from this graph due to the low number of connections.

- 3.127 For the ~215,700 premises in rural copper areas:¹⁰²
- 3.127.1 99% are in coverage of a 4G or 5G mobile network;¹⁰³
 - 3.127.2 93% are within coverage of at least one FWA network, with 3% also in coverage area of a 5G FWA network;¹⁰⁴
 - 3.127.3 62% are within coverage of at least one non-cellular FWA network;
 - 3.127.4 1% are able to access a fibre network;¹⁰⁵
 - 3.127.5 0.5% can access One NZ's HFC network; and
 - 3.127.6 any premises with sufficient line of sight to the sky can access a LEO satellite service.¹⁰⁶
- 3.128 We have excluded voice over GEO satellite from our coverage and price analysis as we do not view it as a close substitute due to its expected poorer performance. The limited data we have indicates that the high latency of voice services over GEO would not support a quality voice service. This is explained further in our performance analysis.
- 3.129 The coverage of different alternatives is (conceptually) highlighted in Figure 3.9.

¹⁰² Wireless coverage provided by MNOs and WISPs is based on predictive technical models specific to each network. This means actual service availability may differ for certain consumers. It is possible that consumers who find themselves outside the actual coverage of one network may be within the coverage of another. However, in all cases, consumers will be in satellite coverage where there is sufficient line of sight to the sky.

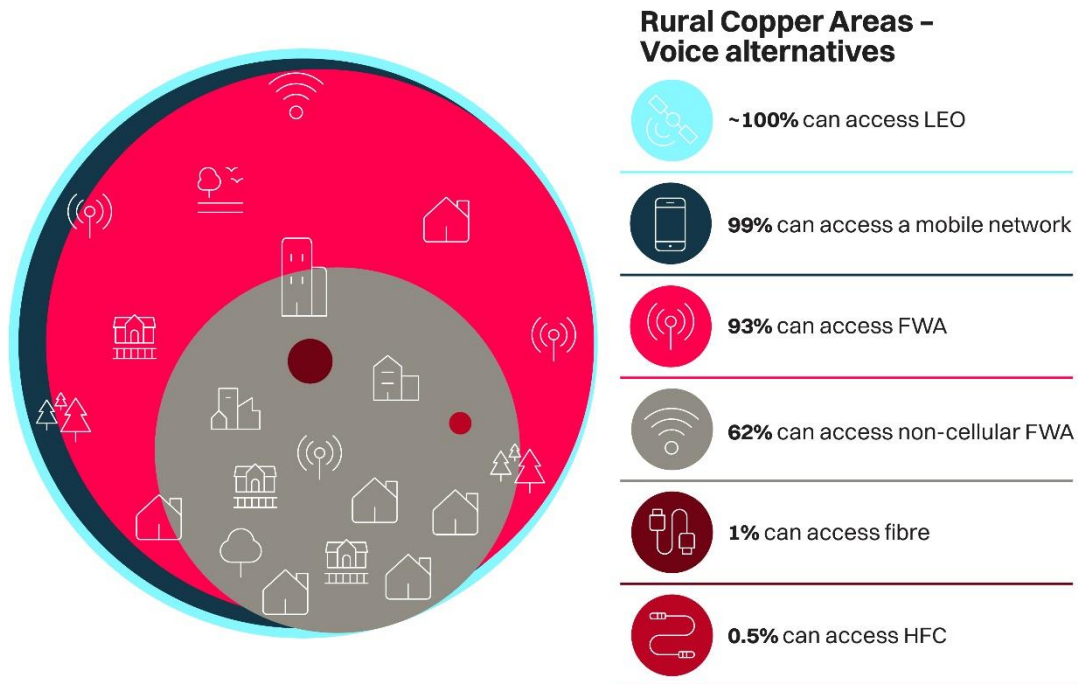
¹⁰³ We only considered 4G and 5G networks as the 3G networks are to be shut down in 2025. We also only included premises where more than half of the premises geographic area was in cell coverage. We note that actual performance will likely vary for consumers, particularly in rural areas, so actual coverage (coverage that allows consistent quality voice calls) is expected to be lower than this.

¹⁰⁴ Only includes premises with over 50% coverage.

¹⁰⁵ Some of these connections may be new fibre connections by one of the LFCs that have not yet been included in SFAs as part of the annual assessment.

¹⁰⁶ Throughout this report we note that “~100%” of premises in rural copper areas have access to LEO and GEO. This figure will not be an absolute 100% as not all consumers will have the required line of sight to the relevant satellite/constellation in order to access a satellite service. We note that future congestion issues (if they arose) could further limit availability.

Figure 3.9 Availability of voice alternatives in rural copper areas



3.130 Taking a consumer perspective, Table 3.6 outlines the percentage of premises in rural copper areas which can access different retail voice alternatives.

Table 3.6 Availability of technologies capable of providing a voice service¹⁰⁷

Number of voice alternatives available	% of premises in rural copper areas which can access
1	~100%
2	99.6%
3	96.3%
4	58.9%
5	1.9%
6	<0.1%

3.131 This highlights that around 96% of premises in rural copper areas have access to three alternative voice technologies while almost 60% have access to four.

¹⁰⁷ This table takes a consumer perspective by counting how many alternatives are available at each premises in rural copper areas. For example, the 99.6% of premises that can access two voice alternatives (LEO plus one other) likely includes all 99% of premises in mobile coverage plus some premises not in coverage of the mobile network that can access another alternative (eg, a WISP non-cellular FWA service). Commission data.

3.132 A small number of premises in rural copper areas (~920 or 0.4%) can only access a voice alternative over a LEO network. We estimate that no more than 850 of these have an existing copper voice connection. The remainder likely do not have a voice connection or use VoIP, Wi-Fi calling or OTT over a LEO broadband connection.

Close substitutes

3.133 We then consider whether retail voice alternatives represent close substitutes for retail services using UCLF as an input. This involves consideration of both price and performance characteristics.¹⁰⁸

Price comparison

3.134 Table 3.7 summarises landline voice service pricing over different technologies, split by voice only or bundled with broadband.¹⁰⁹ We provide the retail cost of a copper only landline for comparison.

Table 3.7 Summary of retail voice plans by technology¹¹⁰

Voice technology	Monthly price	NZ Landlines c/min	NZ Mobiles c/min	Notes
Copper (Voice only)	\$68.70	\$0.24	\$0.39	Spark offers this service, but only where a wireless or fibre landline is not available
Copper (Bundled)	\$94 – \$127	\$0 – \$0.24	\$0.22 – \$0.39	–
Fibre (Bundled)	\$70 – \$139	\$0 – \$0.25	\$0 – \$0.39	–
FWA (Bundled)	\$45 – \$124 ¹¹¹	\$0 – \$0.24	\$0.25 – \$0.48	–
Non-cellular FWA (Bundled)	\$70.50* – \$115	\$0 – \$0.10	\$0 – \$0.39	–

¹⁰⁸ As discussed previously, consumers trade off price, performance and other characteristics when making purchasing decisions. As such, our view is that alternatives do not necessarily need to provide the same or better performance than the regulated service in question to be substitutes. Our analysis does consider varying price and performance characteristics from alternatives (eg, slightly worse performance/speed but much cheaper would still be seen as an alternative). However, as the copper network is approaching end of life, and with growing consumer demands for speed and data, our view is that alternatives should at least provide a similar level of performance, not one that is substantially worse, even at a cheaper price. For example, we would consider an alternative that is more expensive but provides a better service as a potential close substitute, but do not see an alternative that provides substantially worse performance but at a cheaper price as a close substitute.

¹⁰⁹ Voice services in Table 3.7 are VoIP (aside from the copper voice only service which uses UCLF).

¹¹⁰ Pricing data taken from the websites of Spark, One NZ, 2degrees, Slingshot, Farmside, Primo, Inspire, Aonet, Lightwire, Amuri, Mercury, KiwiVoIP and Starlink on 22 September 2024. There were no voice only plans available over FWA, non-cellular FWA, fibre or LEO so these options have not been included.

¹¹¹ Includes Spark's \$45 wireless landline plan that comes with 40GB of wireless broadband data per month.

Voice technology	Monthly price	NZ Landlines c/min	NZ Mobiles c/min	Notes
HFC (Bundled)	\$83	\$0.25	\$0.39	–
LEO (Bundled)	\$90.44*	\$0 – \$0.05	\$0 – \$0.17	–
Mobile	\$8 – \$90	Free – minute caps on some plans	Free – minute caps on some plans	Mobile plans primarily offer a minute cap rather than cents per minute rates. Most mobile plans do not differentiate between NZ landlines and mobiles

* Includes a VoIP landline connection supplied by a different provider to the broadband connection

- 3.135 This data highlights that there are a number of alternative retail landline voice services that compare favourably to copper voice services on price. While there are no voice only options available, the bundled options offer similar priced access to a voice service, while having broadband included.
- 3.136 Some landline plans over alternative technologies offer free calling (or a set number of free minutes) to national landlines and/or mobiles, making the complete cost more attractive relative to copper landlines.
- 3.137 Mobile voice services largely offer better value for money than all other voice services, with much cheaper minutes to a wider range of devices (eg, mobiles and landlines) and locations (eg, many mobile plans include calling to Australian landlines and mobiles).
- 3.138 Table 3.7 focuses on landline (VoIP over alternative technologies) and mobile voice services. As outlined above, Wi-Fi calling and OTT applications can be used for voice services and only require a broadband connection. Table 3.3 in our UBA analysis summarises the prices of broadband plans that could be used for Wi-Fi calling and voice over OTT applications.

Performance comparison

- 3.139 UCLF supports end-users (via a service purchased from an RSP) to make and receive voice calls over a landline. Services using UCLF are a different technology to the alternatives available and so comparing performance is difficult.¹¹²

¹¹² For example, the service quality measures in the Spark TSO, which relates to an analogue copper landline service, focus on unsuccessful call attempts, downtime and response time. 'Line connect speed capacity for standard internet calls' is the only possible comparable to alternatives with regard to performance and user experience. Even the line connect speed capacity for standard Internet calls measures (95%

- 3.140 We are not aware of any NZ data specifically on the quality of voice services over different technologies (eg, consumer experience). The quality of VoIP, Wi-Fi calling and OTT services is highly dependent on a number of variables, including the stability and bandwidth of the internet connection. As such, we expect the quality of these services to differ premises by premises including by the technology used, with alternatives over a fibre broadband connection likely able to provide a better quality consumer experience than FWA or LEO. We compare these characteristics in place of having actual consumer voice quality data.
- 3.141 Some of the characteristics which affect the quality of voice over a broadband connection include:
- 3.141.1 **Broadband speed:** both download and upload speed should ideally be the same, with 100kbps/100kbps often seen by industry as the minimum requirement for a VoIP call.^{113, 114}
 - 3.141.2 **Latency:** a high level of latency can lead to significant pauses and delays between statements on a call. VoIP calls with less than 150ms of latency (one way) are considered to be usable.¹¹⁵ Top quality VoIP calls likely require a lower latency than this.
 - 3.141.3 **Jitter:** a high level of jitter can significantly disrupt a voice call and make it unusable. Industry indicates jitter should be as low as possible, with levels under 30ms expected to provide sufficient quality.¹¹⁶
 - 3.141.4 **Packet loss:** sources indicate packet loss should be as close to 0% as possible, with levels under 1% usable. Anything beyond that can significantly affect the call quality.¹¹⁷
- 3.142 We are also not aware of any data outlining acceptable levels of such indicators for a 'quality' voice experience over a broadband connection in NZ. However, our analysis of broadband alternatives in Figures 3.4 and 3.5 highlights the differences between technologies regarding some of these characteristics.
- 3.143 This indicates that all of the broadband technologies that support VoIP have high enough download and upload speeds to maintain a quality VoIP call. VoIP over the lowest speed non-cellular FWA and GEO plans may suffer if there are other devices sharing the bandwidth at the same time.

meet the 14.4kps connect speed and 99% meet the 9.6kps connect speed) are not necessarily appropriate to compare as they apply to a dial-up connection and were originally based on fax speeds.

¹¹³ Cisco "[Implementing Quality of Service Over Cisco MPLS VPNs](#)" (26 May 2006).

¹¹⁴ For example, Skype requires a minimum 30kbps/30kpbs connection but it is recommended to have at least a 100kbps/100 kbps connection. Microsoft "[How much bandwidth does Skype need?](#)".

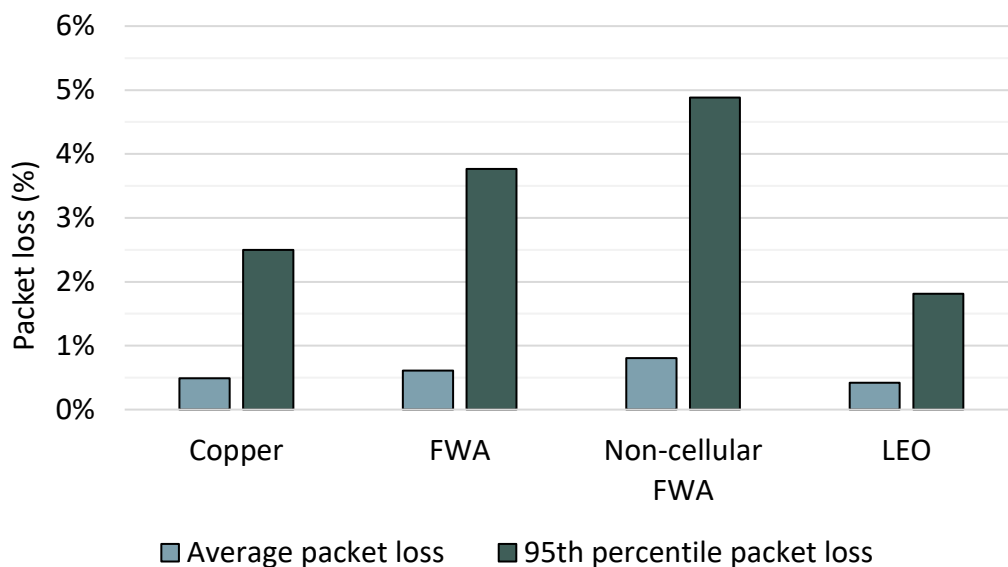
¹¹⁵ Cisco "[Implementing Quality of Service Over Cisco MPLS VPNs](#)" (26 May 2006).

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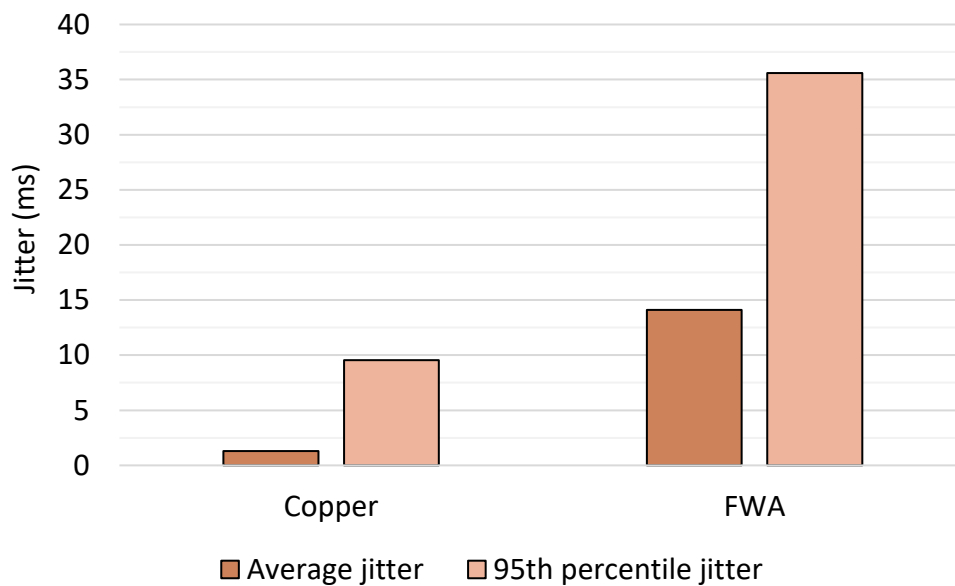
- 3.144 With the exception of 4G FWA and GEO,¹¹⁸ all of the technologies have low enough levels of latency, including at peak times, to support a quality VoIP call. GEO broadband services, due to the nature of the technology, naturally have high latency levels, making them less appropriate for latency sensitive use such as voice calls. These levels would likely affect voice calls over GEO broadband connections, with significant delays when each person speaks expected. As a result, our view is that a GEO broadband connection would not support a quality voice service.
- 3.145 Figures 3.10 and 3.11 highlight the differences in average jitter and packet loss across several broadband technologies.

Figure 3.10 Average packet loss across select broadband technologies¹¹⁹



¹¹⁸ With a peak time latency under load (down) of 297ms, 4G FWA is right on the cusp of what is seen to be the maximum latency for a quality VoIP call (150ms one way or 300ms return). As a result, 4G FWA may suffer from poorer quality VoIP calls at peak times such as in the evenings or on public holidays.

¹¹⁹ The packet loss data is peak time (weekdays between 7pm and 11pm). As we have done with earlier figures and tables, we have excluded Fibre and HFC due to their low expected future availability. The average peak time packet loss of these two is the lowest across the alternatives at 0.27% (fibre) and 0.38% (HFC).

Figure 3.11 Average jitter across select broadband technologies¹²⁰

3.146 This data suggests that in respect of jitter and packet loss, all of the broadband technologies compared should be able to, on average, support a quality VoIP call. However, consumers would be unlikely to have a seamless experience all of the time. For example:

3.146.1 the 95th percentile figures for average peak time packet loss had values of over 1% for all compared alternatives, with copper (2.50%) FWA (3.76%) and non-cellular FWA (4.88%) the highest; and

3.146.2 the 95th percentile 24/7 jitter figure for FWA (4G) was over 30ms (35.58ms).¹²¹

3.147 High jitter and packet loss values would likely result in choppy, distorted audio for users of the voice service, making communication difficult.

¹²⁰ Due to sample sizes, we only have jitter data for copper and 4G FWA. The Jitter data is taken across July 2024 and is 24/7, not specifically peak time data. This data sums the average jitter up and jitter down results. While we appreciate jitter is not necessarily fully additive, by doing this we are showing the worst case scenario. Actual experience would be expected to be better. As we have done with earlier figures and tables, we have excluded Fibre and HFC due to their low expected future availability. While we have no jitter data for HFC, the median fibre jitter is similar to copper at 1.28ms. The 95th percentile value is 1.84ms.

¹²¹ Note the footnote above indicating the additive approach we have taken represents the worst case scenario and actual performance is likely to be better.

- 3.148 In summary, most alternatives should, on average, be able to support a quality VoIP service. Some performance impacts, which would likely result in choppy, distorted audio, are expected for some users at times of peak load and/or on specific technologies.¹²²
- 3.149 Mobile voice quality is affected by some of the same characteristics as voice services over a broadband connection, with strength of coverage a key factor. Mobile can also, by definition, be used on the move, providing benefits and functionality only matched by Wi-Fi calling and OTT services. However, mobile voice services also have downsides, such as the need to be in service and limited battery life.
- 3.150 Our view is that mobile voice and voice over fibre, LEO and non-cellular FWA likely represent close substitutes for retail copper voice services. We would expect voice over FWA to operate adequately in most situations but may suffer when usage is high, either from multiple devices at the premises or congestion on the network. Due to its high latency, we do not see voice over GEO as a close substitute because it would not support a quality voice service.¹²³

Consumer switching behaviour

- 3.151 Consumers have been moving away from traditional landline services for calling. Nationwide, landline connections across all access technologies (including as part of broadband-voice bundles) have continued to decline, down 33%.¹²⁴
- 3.152 This trend is present rurally as well. At the end of June 2023, Chorus had 22,000 UCLF connections in rural areas (outside of SFAs), down 21% from a year earlier (28,000 connections).¹²⁵ Figure 3.12 highlights how this decline has been present over the past four years, with an average decrease of around 1,400 connections per quarter.¹²⁶

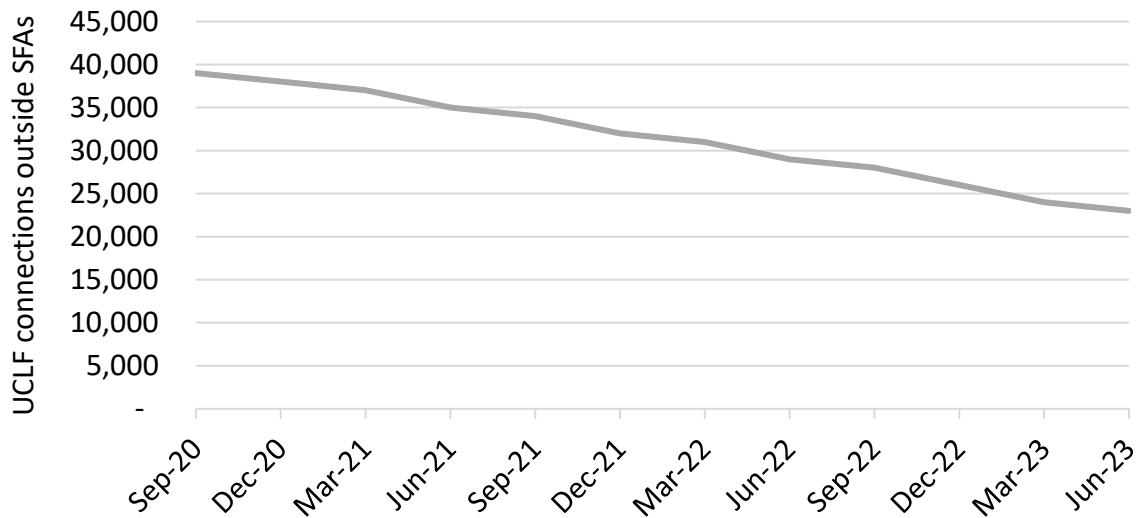
¹²² Capacity constraints, as discussed previously, remain a factor here too, because as capacity is used up, performance degrades, which would likely impact the quality of VoIP. Disconnections (as outlined in Table 3.4) will also have an impact on voice over broadband services.

¹²³ We acknowledge that a small number of premises in rural copper areas currently use a GEO voice service (we estimate less than 60). However, we do not expect those dedicated voice connections provide a voice service near the quality of one over the copper network.

¹²⁴ Year to 30 June 2023. Nationally, there were ~757,000 landlines as of June 2022, compared with ~505,000 as of June 2023 (Commission data).

¹²⁵ Commission data.

¹²⁶ As SFAs are extended every year, some of the decline will be voice connections that become included in SFA areas and are thus removed from this reporting. However, we see a similar decline in copper voice lines inside SFAs too, so connections are likely decreasing in rural areas for separate reasons (likely consumers switching to alternatives). Some of these figures may differ slightly from elsewhere in this report as these data points come from Chorus quarterly connections updates, not Commission data.

Figure 3.12 Chorus UCLF connections outside of SFAs

- 3.153 The drop in copper voice connections across New Zealand is likely due to several factors including the availability of alternatives, RSP marketing choices, and commercial decisions to not provision new connections in some cases. While we have heard anecdotes of rural consumers switching away from copper broadband but retaining a copper landline, the data available does not support that as a widespread trend. For example, in the nine months to June 2024, rural copper broadband and voice connection numbers fell at similar average rates per quarter, 4.5% and 4.9% respectively.¹²⁷
- 3.154 Average monthly mobile data usage per subscriber has been trending up year on year,¹²⁸ which may indicate an increasing use of OTT applications to make voice calls in place of using a landline. We do not have detailed data to confirm that is the case.¹²⁹
- 3.155 At 30 June 2023, there were 6.6m mobile connections across the country, with 10.9b mobile voice call minutes and 6.2b text messages sent during the year. The number of mobile voice call minutes has grown 127% over the last decade, from 4.8b minutes in 2012/13.¹³⁰
- 3.156 We do not have data on consumer usage of Wi-Fi calling or OTT applications, but both represent a means of making voice calls without the need for a landline voice connection or mobile coverage.

¹²⁷ We understand that there may be some households who retain a copper voice connection when switching away from a copper broadband connection, possibly due to resilience concerns, but believe this is likely only on a small scale. Chorus data did not differentiate rural copper broadband connections prior to Q1 FY24 so we have used the year to June 2024 here.

¹²⁸ Commission 2023 AMR, page 9.

¹²⁹ More detailed analysis of these trends can be found in our mobile termination access services [reasonable grounds assessment draft decision paper](#) published for consultation on 13 November 2024.

¹³⁰ Commission 2023 AMR, page 9.

3.157 We do not have data on end-user switching behaviour between voice services, including between technologies.

Competition summary

- 3.158 Copper landlines currently make up 65% of the voice connections in rural copper areas, but there are a number of alternatives available. The primary one is mobile voice, with over 99% of premises in rural copper areas having mobile coverage. The other alternatives (VoIP, Wi-Fi calling and OTT applications) all require a broadband connection, with this available via a range of technologies as described in our UBA analysis. Over 96% of premises in rural copper areas have access to three alternatives (including alternative broadband technologies capable of VoIP, Wi-Fi calling and OTT applications). We expect the availability of these alternatives to continue into the foreseeable future, with another LEO provider likely to enter the market and FWA continuing to be rolled out further around the country.
- 3.159 Our expectation is that alternative broadband technologies with low availability currently (primarily 5G FWA, fibre and HFC) will remain low in the foreseeable future. The high costs to roll-out HFC and fibre networks means the economic case is hard to make for low density rural regions. 5G FWA will initially be rolled out in more densely populated areas which likely have regulated fibre already (ie, are urban not rural). However, we do expect some rural consumers to be able to access 5G FWA as it is rolled out across the country.
- 3.160 The alternatives mostly compare favourably to copper voice services with regard to ongoing monthly cost.¹³¹ Mobile phone plans can be purchased for as little as \$8 a month, with landline over VoIP often available for an extra \$10 a month on top of an existing broadband connection. Wi-Fi calling and OTT apps are cheaper than VoIP (on a monthly cost basis) due to the need to only have a broadband connection. Several broadband technologies have higher upfront costs (LEO and some non-cellular FWA plans) due to the technology used and installation required (some of these units are able to be purchased on sale or refurbished at a cheaper price).
- 3.161 Performance wise, most of the alternatives are comparable to copper voice services. As there are many variables that affect a voice connection, particularly one over an internet connection, it is difficult to state conclusively what the performance of alternatives is likely to be in all cases. However, aside from GEO connections and FWA at times of peak usage which can have high latency, the alternatives over a broadband connection would likely perform at a similar level to a copper voice service.¹³²

¹³¹ This is strengthened if we exclude Spark's copper voice only connection offered only where FWA or fibre landline is not available.

¹³² We note that we have no data on the performance of voice over non-cellular FWA from WISPs. We expect that it would perform similarly to voice over FWA, with lower risk of congestion issues due to the size and scale of WISPs.

- 3.162 Capacity constraints, including those that might arise as more users join a network, currently impact the availability of alternatives and experience for some consumers. Our analysis already factors in known stop sells, but we expect these issues to continue into the foreseeable future for 4G FWA, and impacts are possible across other alternative technologies. 5G FWA and LEO are still in early stages of adoption so capacity issues for existing and new consumers may not currently be present, but could arise.¹³³
- 3.163 Rurally, copper voice connections are following the decline in copper use seen nationwide, with a 21% fall in connections in the year to 30 June 2023. We have seen on around 1,400 fewer rural voice connections each quarter for the last four years, while average mobile data usage and the number of mobile voice call minutes (nationwide) have grown consistently over the last decade.
- 3.164 Our view is that mobile voice, and voice over fibre, LEO and non-cellular FWA likely represent close substitutes for retail copper voice services. We see these each providing a high competitive constraint on copper voice services. Voice over FWA is also a substitute, but one which likely only provides a moderate competitive constraint due to potential issues with congestion. Due to its high latency figures, we do not see voice over GEO as a close substitute. GEO offers, at best, a low competitive constraint.
- 3.165 Overall, our view is that competition exists in the market for retail voice services in rural copper areas. With the continuing rise in mobile data (which can be used for voice over OTT apps), the likely introduction of Project Kuiper as a competing LEO service, the continued expansion of FWA, including 5G FWA, and the potential introduction of direct-to-cell services, we expect this competition to continue into the foreseeable future.

Identifying what state best gives effect to the section 18 purpose (Step 4)

- 3.166 Our final step is to determine whether, in light of our findings in relation to competition, a telecommunications service should be added to Schedule 1; or in respect of UCLF, whether an amendment to, or omission from, the Act is required to best give effect to the section 18 purpose.¹³⁴
- 3.167 Section 18 outlines that the purpose of Part 2 of the Act (where Schedules 1 sits and within which UBA is a designated service) is to “promote competition in telecommunications markets for the long-term benefit of end-users of telecommunications services within New Zealand”.

¹³³ Competition (from the entry of new service providers such as Project Kuiper) is more likely to address any potential LEO congestion issues than potential FWA congestion. Additional FWA capacity would require overbuild of networks which is unlikely to be economically viable.

¹³⁴ Section 18 outlines that “the purpose of this Part and Schedules 1 to 3 is to promote competition in telecommunications markets for the long-term benefit of end-users of telecommunications services within New Zealand by regulating, and providing for the regulation of, the supply of certain telecommunications services between service providers”.

- 3.168 It also outlines that when determining whether any act or omission may contribute to or promote competition in telecommunications markets for the long-term benefit of end-users, we must consider:
- 3.168.1 the efficiencies that will result, or will be likely to result;¹³⁵ and
 - 3.168.2 the incentives that exist for, and the risks faced by, investors in new telecommunications services.¹³⁶
- 3.169 In this section, we compare the factual (the future state with existing regulation) to the counterfactual (the future state without regulation) and consider which would best give effect to the section 18 purpose.
- 3.170 As set out above, we expect that the competition we see in the retail voice market (in rural copper areas) to continue into the foreseeable future. Where competition exists in the relevant markets, and is expected to remain or grow, regulation is likely no longer required to promote competition in those markets for the benefit of end-users.
- 3.171 As with UBA, our view is that the appropriate counterfactual is deregulation of UCLF by omitting it from Schedule 1. Adding a service to the Act, or amending the description of UCLF in the Act, would not best meet the purpose set out in section 18 as it would retain (or even increase) regulation for a service where competition is currently present and is expected to continue, whether regulation remained or not. For example, retaining regulation to protect a small number of remaining consumers would require Chorus to maintain a geographically dispersed network for a limited number of users. This would likely become increasingly uneconomic for Chorus, and not best promote the section 18 purpose.
- 3.172 It is important to note that we see a number of competitive trends or developments occurring in the rural retail voice and broadband markets (that further reduce copper's role) irrespective of whether regulation is retained or removed. These are:
- 3.172.1 the continuing trend of consumers in rural areas switching to alternatives;
 - 3.172.2 the commercial decisions of RSPs to cease offering new copper connections and active promotion of their own wireless services (where available); and
 - 3.172.3 the likely entry of new LEO operators into the market, notably Project Kuiper, bringing further competition and choice for rural consumers.
- 3.173 Our assessment uses this context as a baseline for both the factual and counterfactual.

¹³⁵ Telecommunications Act, cl 18(2).

¹³⁶ Telecommunications Act, cl 18(2A).

Factual assessment (the future state with existing regulation)

- 3.174 An ongoing regulatory obligation would require Chorus to continue to invest and maintain the copper infrastructure required to provide UCLF for a reducing number of consumers.¹³⁷ The investment case for copper voice is increasingly challenging, with any new capital investment unlikely to be recovered from consumers who remain using UCLF. This scenario is likely uneconomic and could impose inefficient investment costs on Chorus.
- 3.175 Under the factual, regulation would continue to provide a wholesale price cap. On one hand, the price cap provides a degree of discipline on retail voice prices, which benefits consumers who continue to purchase copper-based voice services. On the other, the current price cap, which was set with reference to a national cost model in 2015, may be below cost for rural areas as the model was based on a high rate of customer density which no longer exists. Regulation may therefore be dampening incentives to invest by crowding out competitive and efficient entry from local, non-LEO networks.
- 3.176 While we do not have data on faults for copper voice services, copper broadband services suffer higher levels of faults with lengthy resolution times compared with broadband alternatives. As UCLF is provided over the low frequency aspect of the copper wire also used for UBA, we expect faults to also be disproportionately high for copper voice services. Continued regulation would require Chorus to continue supporting the infrastructure for UCLF so consumers would have less (performance based) incentive to shift to an alternative service which could provide them a better experience than services over the aging copper network.¹³⁸

Counterfactual assessment (the future state without regulation)

- 3.177 Under the counterfactual, where UCLF is deregulated, Chorus would no longer be required continue to maintain investment in the copper infrastructure used to provide UCLF.¹³⁹ As a result, it could be expected to minimise, or more likely cease, such investment. Chorus plans to retire the copper network so we would expect specific infrastructure used to provide UCLF services would be retired and UCLF services would no longer be offered. The savings made from this reduction in investment in the copper network represents efficiencies for Chorus.¹⁴⁰

¹³⁷ We note the view Chorus outlined in its submission and cross submission that Determinations under Part 2 cannot prevent the exit of assets. We disagree.

¹³⁸ We expect consumers would still face higher prices as wholesale and retail prices would likely continue to increase. This would incentivise consumers to switch technologies from a price perspective.

¹³⁹ We note that while the TSO is not copper based, Chorus may use the copper network to meet its network obligation. As such, TSO lines may not see a ceasing of investment or maintenance like non-TSO lines could.

¹⁴⁰ Chorus outlined some of the potential cost savings and net proceeds from the retirement of its copper network in a recent investor presentation. Chorus "[Investor Day 2024 - Presentation](#)" (2 December 2024), see slides 71, 77 and 80.

- 3.178 As outlined in our UBA analysis, these savings would be much greater if all of the relevant copper services were deregulated. As UCLF and UBA are primarily provided over the same physical infrastructure, deregulation of both of these (as well as of UCLL Co-location, UCLL Backhaul and UBA backhaul as ancillary services) would allow Chorus to cease investment in all of the copper network in line with its stated intention.
- 3.179 If Chorus withdrew UCLF services following deregulation, consumers will be required to switch to an alternative, incentivising investment in these technologies and possibly further entry. Deregulation, when regulation is no longer needed, also promotes regulatory certainty, and thus supports investor confidence.
- 3.180 In the absence of regulation, Chorus would be able to price the wholesale service at a level it views as economic (it states this is higher than the current geographically averaged price due to urban copper withdrawal and overall declining connection numbers).¹⁴¹ This would raise the cost of a wholesale service, likely further raising the price of retail copper voice services. With its intention to retire the network, such wholesale price rises (for services still existing before the network was fully retired) would likely incentivise consumers off copper to an alternative.
- 3.181 Consumers unwilling or unable to switch to an alternative would be negatively impacted. However, as our competition analysis has shown, in almost all cases, there are alternatives available that likely provide similar quality at similar or cheaper prices. Copper pricing that incentivises positive behavioural change in consumers (through switching), is more likely to be beneficial for them from a connectivity and financial perspective in the longer term.

Overall assessment of the regulatory state that best gives effect to the section 18 purpose

- 3.182 Overall we are of the view that regulation of UCLF is no longer necessary to best give effect to the section 18 purpose and promote competition in telecommunications markets for the long-term benefit of end-users. Competition exists and is expected to continue in the relevant markets, and a future state where regulation no longer applies would provide improved efficiencies and incentives to invest.
- 3.183 Our draft recommendation is therefore that UCLF is omitted from Schedule 1 of the Act.

UCLL Co-location, UCLL Backhaul and UBA Backhaul

- 3.184 As outlined previously, UCLL Co-location, UCLL Backhaul and UBA Backhaul are ancillary services that support the provision of UBA and UCLF. Regulation stipulates that they cannot be used for any other purpose.

¹⁴¹ A commercial decision by Chorus to price at an uneconomic level is another possible, albeit unlikely, scenario. If this was the case, consumers would not be as negatively impacted.

- 3.185 Accordingly, as outlined in paragraph 3.17, we have focused the Investigation on the UBA and UCLF services. We indicated that we would only undertake analysis of the ancillary services where appropriate based on the draft recommendations for UBA and UCLF.
- 3.186 As we are recommending that the UBA and UCLF services are omitted from Schedule 1 of the Act, we have not undertaken analysis of UCLL Co-location, UCLL Backhaul and UBA Backhaul.

Draft recommendations

- 3.187 Our draft recommendations are that the UCLL Co-location, UCLL Backhaul and UBA Backhaul services are omitted from Schedule 1 of the Act.
- 3.188 As we are recommending UBA and UCLF are omitted from the Act, there is no long-term benefit to end-users of retaining regulation for these three ancillary services.

Attachment A Response to submissions

- A1 We received nine submissions and one cross-submission from stakeholders on our Approach paper. The tables below contain our responses to key submission points on our assessment framework and on the type of evidence we should use in the Investigation.
- A2 We have only included submissions where they relate to the framework and approach, and where a response is useful to clarify what we have done and why (eg, we do not include submissions which state they support or agree with elements of our framework).
- A3 Specifically:
- A3.1 Table A1 contains submissions on the overall assessment framework.
 - A3.2 Table A2 contains submissions on the services in scope.
 - A3.3 Table A3 contains submissions on the geographic areas in scope.
 - A3.4 Table A4 contains submissions on competition analysis.
 - A3.5 Table A5 contains submissions on the types of evidence to be considered.

Table A1 Submissions on the overall assessment framework

Submitter(s)	Submission summary	Response in cross-submission	Our response
Business Technology Group (BTG)¹⁴²	The assessment should consider whether all the other networks provide an equivalent or better level of service today and into the future for both voice calling and broadband internet if copper is withdrawn.	Chorus: ¹⁴³ Disagree. The competition assessment does not require all other services to be equivalent or better than the current copper service. Services with different technical characteristics, and even substantial technical differences, can still provide a competitive constraint.	We disagree with BTG. Sufficient competition can be provided by a range of services and technologies. Not all need to be equivalent or better than copper broadband or voice.
BTG¹⁴⁴	Ensure the future needs and requirements of consumers including the need for higher speeds, low or consistent latency and growing data caps would not be adversely impacted.	–	We agree and have done so. Our Investigation takes a forward looking view, including in consideration of these elements.

¹⁴² BTG "[Submission on Copper Services Investigation approach paper](#)" (22 May 2024), page 1.

¹⁴³ Chorus "Cross-submission on Copper Services Investigation approach paper" (11 June 2024), paragraph 1.5.

¹⁴⁴ BTG "Submission on Copper Services Investigation approach paper" (22 May 2024), page 1.

Submitter(s)	Submission summary	Response in cross-submission	Our response
Chorus, Spark and NZ Telecommunications Forum (TCF) ^{145, 146, 147}	The application of the proposed framework needs to be grounded in the reality of the commercial environment – there is no situation in which copper services continue to be provided in a competitive market.	–	In applying our framework we have identified alternatives and assessed competition in the relevant markets, on a current and forward looking basis. We have then, having regard to the section 18 purpose, considered the impact of our recommendation on competition and the long-term benefits of end-users. This framework therefore takes account of the competitive conditions and market dynamics.
Chorus ¹⁴⁸	The Commission must not introduce extraneous considerations into its decision making – it must make a decision that best promotes competition in telecommunications markets for the long-term benefit of end-users of telecommunications services within New Zealand.	–	We agree that our scope is limited to that set out in section 69AH of the Act and have applied our framework accordingly. While we recognise that there are other regulatory tools which play a part in the regulation of telecommunications services and our draft recommendation may have implications for these and the wider regulatory landscape, these things are outside the scope of this Investigation and have not factored into our draft recommendation.
Chorus ¹⁴⁹	The Commission must make a decision that recognises the risk of deregulating too late.	–	We consider the benefits and costs of potential regulation changes in our analysis with regard to the section 18 purpose (step 4 of the economic framework).

¹⁴⁵ Chorus “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraphs 7, 8b and 34.

¹⁴⁶ Spark “[Submission on Copper Services Investigation approach paper](#)” (22 May 2024), paragraphs 3 and 4.

¹⁴⁷ TCF “[Submission on Copper Services Investigation approach paper](#)” (22 May 2024), paragraph 9.2.

¹⁴⁸ Chorus “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraphs 8a and 23.

¹⁴⁹ Chorus “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraphs 8f and 35.5.

Submitter(s)	Submission summary	Response in cross-submission	Our response
Chorus ¹⁵⁰	Determinations under Part 2 are not universal service obligations and cannot prevent the exit of assets. The current guarantees of service provided by instruments under Part 3 of the Act (specifically, the TSOs) are inadequate and a review of New Zealand’s universal service arrangements is required. However, the inadequacy of the TSO does not mean the Commission is permitted to exercise its powers under Part 2 of the Act to compensate.	–	We do not agree that Determinations under Part 2 cannot prevent the exit of assets. However our scope is limited to that set out in section 69AH of the Act.
One NZ ¹⁵¹	Understand that decisions relating to broader issues (TSOs, STDS and existing Codes) are out of scope of this investigation.	–	We agree that our scope is limited to that set out in section 69AH of the Act and have applied our framework accordingly. While we recognise that there are other regulatory tools which play a part in the regulation of telecommunications services and our draft recommendation may have implications for these and the wider regulatory landscape, these things are outside the scope of this investigation and have not factored into the draft recommendation.

¹⁵⁰ Chorus “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraphs 25, 25.1, 26 – 28 and 29 – 33.

¹⁵¹ One NZ “[Submission on Copper Services Investigation approach paper](#)” (22 May 2024), page 1.

Submitter(s)	Submission summary	Response in cross-submission	Our response
Rural Women NZ ¹⁵²	Consider how rural is defined – there are a range of different definitions available.	–	Our investigation considerations are guided by the exiting legislation. We use rural in the Investigation to mean all areas outside of SFAs as this is what we consistently use ‘rural’ to mean across other publications. Such consistency helps understanding.
Spark ¹⁵³	This investigation anticipates a broader range of considerations than seen in Schedule 3 reviews to date.	–	We agree that some of our Schedule 3 reviews to date only focus on omitting a service (as required under Schedule 3, Part 1 Clause 1(3)). However, this Investigation is a modified Schedule 3 review of Schedule 1. As outlined by 69AH, the Commission can consider all of the alterations set out in sections 66 and 67 which includes omitting, amending and adding. Nonetheless, the framework we have developed we see as a starting template for all Schedule 3 reviews going forwards (with tailoring for each review as required) providing certainty and consistency.

¹⁵² Rural Women “[Submission on Copper Services Investigation approach paper](#)” (22 May 2024), page 4.

¹⁵³ Spark “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraphs 3 and 4.

Submitter(s)	Submission summary	Response in cross-submission	Our response
Spark ¹⁵⁴	Support the Commission being mindful of the wider regulatory and competitive landscape, including the TSOs, STDs and existing Codes, as part of its review. We recommend that the Commission also further consider practical regulatory framework and implementation issues as, for example, other regulatory instruments rely on the regulated services considered.	–	We disagree. Our scope is limited to that set out in section 69AH of the Act and we have applied our framework accordingly. While we recognise that there are other regulatory tools which play a part in the regulation of telecommunications services and our draft recommendation may have implications for these and the wider regulatory landscape, these things are outside the scope of this investigation and have not factored into the draft recommendation.
Spark ¹⁵⁵	Protecting end-users as the context and regulatory framework changes is an important part of the review. Accordingly, we recommend that the Commission capture, in addition to service availability, information relating to copper performance and end-user protections early in the project timeline.	–	The scope of the investigation is limited to that set out in section 69AH of the Act. We can, and do, consider the costs and benefits of legislation change, including on end-users, as part of our framework, analysis and application of section 18.

¹⁵⁴ Spark “Submission on Copper Services Investigation approach paper” (22 May 2024), page 3 and paragraph 2.

¹⁵⁵ Spark “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraph 9.

Submitter(s)	Submission summary	Response in cross-submission	Our response
Spark ¹⁵⁶	The copper STDs have been frozen for several years and may require amendments. While the draft foreshadows an STD review process following the Schedule 1 review, the reverse may also apply, i.e., Schedule 1 may be amended to facilitate a beneficial change to the STD not adequately covered by the existing service description.	Chorus: ¹⁵⁷ We disagree. Spark's proposal is based on advancing purposes unrelated to the promotion of competition. They appear to be based on ensuring availability of services and establishing conditions for network retirement which is outside the scope of regulation under Part 2; and; any investment in establishing new or revised copper services would be wasteful and likely to distort rather than promote competition.	We disagree with Spark that we would consider reviewing the STD prior to completion of the Investigation. While any amendments to Schedule 1 could impact the STDs, under section 69AG(2) and (5), we cannot carry out a section 30R review of the STD's until our investigation is completed. We are also required by section 69AH to complete this investigation by 31 December 2025.
Tuatahi ¹⁵⁸	The Commission must undertake the review in line with the regulatory purpose statement.	–	We agree and have done so in our Investigation.

¹⁵⁶ Spark "Submission on Copper Services Investigation approach paper" (22 May 2024), paragraph 10.

¹⁵⁷ Chorus "Cross-submission on Copper Services Investigation approach paper" (11 June 2024), paragraphs 15 and 16.

¹⁵⁸ Tuatahi "[Submission on Copper Services Investigation approach paper](#)" (22 May 2024), paragraph 3.

Table A2 Submissions on the services in scope

Submitter(s)	Submission	Response in cross-submission	Our response
BTG ¹⁵⁹	As some copper services are grandfathered, the Commission should consider how it handles services no longer available or used.	–	The Act sets out the services we must consider as part of our Investigation. We consider uptake and use of these services as part of our analysis.
Spark ¹⁶⁰	Recommend that the Commission also further consider backhaul and co-location separately to ensure they remain fit for purpose.	Chorus: ¹⁶¹ A review of ancillary services would take significantly more time and provide no material insight into competition. Further analysis on co-location and backhaul markets beyond those supporting copper access services would be outside the scope of this investigation.	As the backhaul and co-location services in scope of this Investigation can only be used to support UBA and UCLF, we have taken a primary / ancillary approach. Our recommendations for UBA and UCLF guided whether we undertook analysis for these ancillary services.
Spark ¹⁶²	The investigation should also establish whether the current regulated services remain fit for purpose in the current environment.	Chorus: ¹⁶³ Disagree that the Commission should consider amending service descriptions. Copper is a legacy technology that cannot efficiently compete with modern alternatives. Amending requirements for copper services will only distort competition further.	The scope of the investigation is limited to that set out in section 69AH of the Act.

¹⁵⁹ BTG “Submission on Copper Services Investigation approach paper” (22 May 2024), page 1.

¹⁶⁰ Spark “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraphs 3 and 5.

¹⁶¹ Chorus “Cross-submission on Copper Services Investigation approach paper” (11 June 2024), paragraphs 1.5, 20 and 21.

¹⁶² Spark “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraphs 3, 4 and 11.

¹⁶³ Chorus “Cross-submission on Copper Services Investigation approach paper” (11 June 2024), paragraph 1.3.

Table A3 Submissions on the geographic areas in scope

Submitter(s)	Submission	Response in cross-submission	Our response
Chorus ¹⁶⁴	The Commission must make a decision that defines the geographic scope of the market(s) at a sufficiently aggregated level to reflect future competitive dynamics. Taking a granular approach (for example, property by property) is inappropriate and unworkable as it would fail to take those considerations into account. The largest area is non-SFAs but areas smaller than this should be approached with caution.	–	We agree that a property by property approach is unworkable. We have taken an approach to the geographic scope of the market which balances understanding of where competition differs and what is practical for an assessment and regulation.
Chorus ¹⁶⁵	The Commission could consider groupings of Chorus Exchange Service Areas in non-SFAs to define geographic areas. This would appropriately reflect competitive dynamics in the foreseeable future.	–	We understand the idea of Chorus Exchange Service Areas being used, however our view is that the number of alternatives present provides a more end-user focused perspective, as well as not being as granular and thus more practical to work with.
Spark ¹⁶⁶	We recommend that the Commission further consider end-user outcomes at a premises level as – with the widespread use of address checkers – some end-users may have fewer service options.	Chorus: ¹⁶⁷ A property by property analysis would take significantly more time and provide no material insight into competition.	We agree and have used (aggregated) premises level data as part of our analysis. However it is impractical to assess competition on a premises by premises level, hence the approach we have taken.

¹⁶⁴ Chorus “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraphs 8d, 35.2, and 41 – 44.

¹⁶⁵ Chorus “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraph 42.

¹⁶⁶ Spark “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraph 3.

¹⁶⁷ Chorus “Cross-submission on Copper Services Investigation approach paper” (11 June 2024), paragraphs 1.5, 20, 20.2 and Table 1.

Table A4 Submissions on competition analysis

Submitter(s)	Submission	Response in cross-submission	Our response
BTG ¹⁶⁸	Consider the impact of reduced competition from wholesale services if copper were to be reduced eg, where only LEO and a WISP are alternatives for a consumer.	Chorus ¹⁶⁹ Disagree. This (alternative services being provided by a similar number of RSPs as copper) has not stopped copper decline to date and would not account for the increase in competition in the future.	We have considered competition at a retail level primarily as that is where the demand for wholesale services are primarily derived. There are generally multiple alternatives (and thus at least two wholesalers) available for consumers.
Chorus ¹⁷⁰	The Commission must make a decision that recognises efficient prices in non-fibre areas are higher than the current regulated prices for the relevant copper services. The Commission must not assess alternative services against regulated prices for relevant copper services.	—	We disagree. The current retail copper prices are what consumers are required to pay and thus relevant for analysis of competition in the retail market. This Investigation is not a pricing exercise (that involves a review of the STD) and we should not speculate on what a review (if it were to be undertaken) may find as a relevant regulated price.
Chorus ¹⁷¹	Recognise separate markets exist for voice and broadband services, with the voice market facing more competition.	—	We agree and have done so as part of our analysis.
Chorus ¹⁷²	The Commission must not speculate on the security of supply of alternatives.	—	We are taking a forward looking view to this Investigation which includes consideration of the entry and exit by providers (and technologies) in the relevant markets.

¹⁶⁸ BTG “Submission on Copper Services Investigation approach paper” (22 May 2024), page 2.

¹⁶⁹ Chorus “Cross-submission on Copper Services Investigation approach paper” (11 June 2024), paragraph 18.1.

¹⁷⁰ Chorus “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraphs 8c, 35.1, 46 – 49 and 77.

¹⁷¹ Chorus “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraphs 8e and 35.4.

¹⁷² Chorus “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraphs 8g, 35.3 and 61 – 63.

Submitter(s)	Submission	Response in cross-submission	Our response
Chorus ¹⁷³	The Commission must focus on the scope of the investigation it is conducting, the relevant competitive constraint as considered by a small but significant non-transitory increase in price test and the availability of data.	–	We have not specifically used a small but significant non-transitory increase in price test as part of our analysis but have considered all of these elements.
Federated Farmers ¹⁷⁴	We recommend that the Commission consider as an additional element to its assessment of alternative services, unreliable electricity supply in rural areas. Surveys of farmers have indicated that poor mobile service and copper landlines staying powered for longer than alternatives after a power outage are reasons for retaining a landline service.	Chorus: ¹⁷⁵ Disagree. This ‘feature’ of legacy copper services should not be a material factor when assessing the state of competition in the market. Copper services require power just as other services do.	We have considered reliability of telecommunications services (such as faults and repair times where we have data on them) as part of our assessment. We have not defined power supply as a feature of the relevant markets.
Rural Women NZ ¹⁷⁶	Propose characteristics to consider whether the alternatives are effective substitutes across the geographic areas including geographic constraints and availability, technical capability and quality, and the ability to switch to any alternative, considering non-price aspects such as network capacity and adaptability, as well as the complexity and time to switch.	–	These are all characteristics included in our framework and have been used as part of our analysis.

¹⁷³ Chorus “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraphs 41 and 42.

¹⁷⁴ Federated Farmers “[Submission on Copper Services Investigation approach paper](#)” (22 May 2024), page 1.

¹⁷⁵ Chorus “Cross-submission on Copper Services Investigation approach paper” (11 June 2024), paragraph 18.2.

¹⁷⁶ Rural Women “Submission on Copper Services Investigation approach paper” (22 May 2024), page 2.

Submitter(s)	Submission	Response in cross-submission	Our response
Rural Women NZ ¹⁷⁷	Stress the key concerns for rural and remote communities of equity of access and quality of service.	Chorus: ¹⁷⁸ Agree with submissions highlighting the importance of connectivity for rural communities and the rural economy. A wider rural connectivity policy review is necessary – but outside the scope of this investigation.	The scope of the investigation is limited to that set out in section 69AH of the Act. As part of that we consider characteristics relevant, including assessment of competition. Availability and the quality of alternatives are key aspects of that analysis.
Rural Women NZ ¹⁷⁹	The quality of service for members has declined including due to the introduction of VoIP over ADSL. The technology (VoIP) is incompatible with some medical alarm systems. Prices have increased for some rural consumers when switching from a copper to a VoIP service stretching budgets.	–	The scope of the investigation is limited to that set out in section 69AH of the Act. As part of that we consider characteristics relevant, including assessment of competition. The prices of alternatives and the quality of alternatives are key aspects of that analysis. Wider affordability concerns are out of scope of the Investigation.
Tuatahi ¹⁸⁰	The Commission needs to take a broad view of economic substitution of alternatives, including consideration of the chain of substitution.	Chorus: ¹⁸¹ Agree with this view and that this is consistent with the Commission’s proposed approach and the approach taken in previous reviews.	Our approach has taken a broad approach to market definition and the alternatives which could provide competitive constraints on the regulated services.

¹⁷⁷ Rural Women “Submission on Copper Services Investigation approach paper” (22 May 2024), page 3.

¹⁷⁸ Chorus “Cross-submission on Copper Services Investigation approach paper” (11 June 2024), paragraph 1.1.

¹⁷⁹ Rural Women “Submission on Copper Services Investigation approach paper” (22 May 2024), page 3.

¹⁸⁰ Tuatahi “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraphs 6, 7, 9 and 10.

¹⁸¹ Chorus “Cross-submission on Copper Services Investigation approach paper” (11 June 2024), paragraph 17.

Table A5 Submissions on the types of evidence to be considered¹⁸²

Submitter(s)	Submission	Our response
BTG¹⁸³	Coverage data (eg, FWA) from maps may not accurately highlight where services (such as FWA and WISP) are reduced or not possible due to geographical features.	We note this and agree there are difficulties in having a clear understanding of coverage. We have addressed this where possible throughout our analysis. Without doing a physical check, we cannot be sure if a service will be available and able to provide a quality service at each premises.
BTG¹⁸⁴	FWA sites come and go from stop sell on a regular basis making analysis difficult. Some sites may also be on restricted stop sell.	We agree that the dynamic nature of stop sells make analysis more difficult, however our availability figures account for stop sells. We have included the stop sell data we have in our analysis.
BTG¹⁸⁵	Pricing is different for urban vs rural FWA – the definition of rural may be different to what is normally considered rural.	We note the pricing differences where possible and have reflected them in our analysis. We have defined rural for this investigation in this report and noted where it differs from other definitions.
BTG¹⁸⁶	Some towers suffer congestion at peak times. This may not be picked up in data.	We note this is likely to be the case for some FWA towers. We have used the data available to us from MBNZ reports which we are unable to break down to show peak trends by sites.
BTG¹⁸⁷	Analysis needs to consider more than just tower or cell and also look at bands and frequencies.	We do not have any data available on tower bands, frequencies and the quality of service provided by those technologies for consumers at varying distances from the tower. Even if we did, we do not feel that the benefit from such analysis would be appropriate for the time and effort required.
BTG¹⁸⁸	Consider LEO congestion as it could impact a large region.	We have noted in our analysis where this could be an issue however we have no data on future potential congestion and its impact on consumer experience.

¹⁸² We received no cross submissions on the types of evidence to be considered.

¹⁸³ BTG “Submission on Copper Services Investigation approach paper” (22 May 2024), page 1.

¹⁸⁴ BTG “Submission on Copper Services Investigation approach paper” (22 May 2024), page 1.

¹⁸⁵ BTG “Submission on Copper Services Investigation approach paper” (22 May 2024), page 2.

¹⁸⁶ BTG “Submission on Copper Services Investigation approach paper” (22 May 2024), page 2.

¹⁸⁷ BTG “Submission on Copper Services Investigation approach paper” (22 May 2024), page 2.

¹⁸⁸ BTG “Submission on Copper Services Investigation approach paper” (22 May 2024), page 2.

Submitter(s)	Submission	Our response
Chorus ¹⁸⁹	The Commission must make a decision that balances data requirements with timeframes to ensure timely deregulation. The Commission has sufficient information currently to make a decision but it should source further information where it deems necessary.	We agree and have done so. While our draft recommendation is primarily informed by data that is current as of 30 June 2023, our final recommendation will include data from the latest round of collection and will be current as of 30 June 2024.
Chorus ¹⁹⁰	The data sources the Commission indicates it will use are all backward looking. The Commission should consider credible publicly available information that provides a leading indicator of future developments.	We agree and where possible have used more recent data and data that provides a leading indicator of future developments. We have still ensured we are using appropriate data for analysis, for example comparing performance at the same point in time.
TCF ¹⁹¹	The Commission should use the most recent data it can. It has a significant amount of data already. It should also consider the burden of data collection on TCF members.	We agree and have used the data we have currently to inform our assessment. We have used the most recent data available where possible and appropriate to do so.

¹⁸⁹ Chorus “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraphs 8h, 35.6, 72 and 79.

¹⁹⁰ Chorus “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraphs 74 – 76.

¹⁹¹ TCF “Submission on Copper Services Investigation approach paper” (22 May 2024), paragraph 10.

Attachment B How the relevant copper services are described in legislation¹⁹²

Service	Schedule 1 service description
Chorus's unbundled bitstream access (UBA)	A DSL enabled service (and its associated functions, including the associated functions of operational support systems) that enables access to, and interconnection with, that part of a fixed public data network that connects the end-user's building (or, where relevant, the building's distribution frame) to a first data switch (or equivalent facility), other than a digital subscriber line access multiplexer.
Chorus's unbundled copper low frequency service (UCLF)	A service (and its associated functions, including the associated functions of operational support systems) that enables access to, and interconnection with, the low frequency (being the frequency band between 300 and 3400 Hz) in Chorus's copper local loop network (including any relevant line in Chorus's local telephone exchange or distribution cabinet) that connects the end-user's building (or, where relevant, the building's distribution frame) to the handover point in Chorus's local telephone exchange.
Chorus's unbundled bitstream access backhaul (UBA Backhaul)	A service (and its associated functions, including the associated functions of operational support systems) that provides transmission capability (whether the transmission capacity is copper, fibre, or anything else) between the trunk side of a first data (or equivalent facility), other than a digital subscriber line access multiplexer, that is connected to the end-user's building (or, where relevant, the building's distribution frame) and the access seeker's nearest available point of interconnection.
Chorus's unbundled copper local loop network co-location (UCLL Co-location)	A service (and its associated functions, including the associated functions of operational support systems) that provides co-location facilities for an access seeker's equipment, and access to the handover point, at Chorus's local telephone exchange or distribution cabinet (or equivalent facility) for the purposes of providing access to, and interconnection with,— (a) Chorus's unbundled copper local loop network (including any necessary supporting equipment); and (b) Chorus's unbundled copper low frequency service (including any necessary supporting equipment).

¹⁹² In our Approach paper, we also included descriptions of each service from the relevant STDs. As our service descriptions have not changed from our Approach paper, we have removed them from this Attachment to improve readability.

Service	Schedule 1 service description
Chorus's unbundled copper local loop network backhaul – telephone exchange to interconnect point (UCLL Backhaul)	<p>A service (and its associated functions, including the associated functions of operational support systems) that provides transmission capacity in a network (whether the transmission capacity is copper, fibre, or anything else) between the handover point in Chorus's local telephone exchange and the access seeker's nearest available point of interconnection for the purposes of providing access to, and interconnection with,—</p> <p>(a) Chorus's unbundled copper local loop network (including any necessary supporting equipment); and</p> <p>(b) Chorus's unbundled copper low frequency service (including any necessary supporting equipment).</p>