FINAL

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COMMERCE COMMISSION NEW ZEALAND
Te Komihana Tauhokohoko

Copper Services Investigation under section 69AH of the Telecommunications Act

Recommendation to the Minister for Media and Communications on the future of copper regulation – final report

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Associated documents

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5 July 2016	ISSN 1178-2560	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
22 April 2024	ISBN 978-1-991085-94-8	Copper Services Investigation under section 69AH of the Telecommunications Act – Approach paper
12 March 2025	ISBN 978-1-99-133235-6	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

Glossary

Table of terms and abbreviations

Act	Telecommunications Act 2001
Access seeker	Has the meaning given in section 5 of the Act and includes a retail service provider
Asymmetric digital subscriber line or **ADSL**	A copper-based technology that can provide basic fixed line broadband services
AIQ	Annual Industry Questionnaire
AMR	Annual Telecommunications Monitoring Report
Commission	Commerce Commission
CPE	Customer premises equipment
CWC	Copper Withdrawal Code
Designated service	A service described in Part 2 of Schedule 1 of the Act, 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
Fixed wireless access or **FWA**	We use FWA in this report to describe cellular fixed wireless access broadband services (eg, 4G and 5G)

Table of terms and abbreviations

Geostationary satellite or **GEO**	Satellites positioned so that they remain over the same place on Earth at around 35,000km
Hybrid fibre-coaxial or **HFC**	A broadband network in parts of Wellington, Kāpiti and Christchurch which uses fibre-optic and copper cabling
The **Investigation**	The Investigation, under section 69AH of the Act, under Part 1 of Schedule 3 of the Act, into whether to recommend changes to the regulation of the relevant copper services by no later than 31 December 2025
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
Low earth orbit satellite or **LEO**	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
Measuring Broadband New Zealand or **MBNZ**	A programme run by the Commission to measure the broadband performance of New Zealand households; a quarterly report is published with results
Minister	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 WISPs
OTT	Over-the-top apps such as Facebook Messenger and WhatsApp
RCS	Rural Connectivity Study
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 or **RCA**	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
Specified fibre area or **SFA**	These are geographic area 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

Table of terms and abbreviations

Standard Terms Determinations or **STD**	Determination made by the Commission that sets out the terms on which wholesale telecommunications service providers must deliver their services to other telecommunications providers
TSO	Telecommunications Service Obligation
Chorus's unbundled bitstream access or **UBA**	A regulated copper-based bitstream service offered by Chorus
UBA Backhaul	Chorus's unbundled bitstream access backhaul service
Chorus's unbundled copper low frequency service or **UCLF**	A regulated copper-based voice service offered by Chorus
Chorus's unbundled copper local loop network service or **UCLL**	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	Chorus's unbundled copper local loop network backhaul (telephone exchange to interconnect point) service
UCLL Co-location	Chorus's unbundled copper local loop network co-location service
Ultra-Fast Broadband or **UFB**	The name given to the government's initiative to roll out a fibre-to-the-premises access network to give households and businesses access to very high-speed broadband
Very high-speed digital subscriber line or **VDSL**	A copper-based broadband connection that allows higher speeds than ADSL technology
Voice over internet protocol or **VoIP**	A technology that enables phone calls over a broadband connection instead of an analogue phone line
Wireless internet service provider or **WISP**	Smaller providers operating mostly in regional or rural areas, using non-cellular FWA, but increasingly also selling satellite and fibre services

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Chapter 1 Introduction

Executive summary

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 20 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 consider if copper regulation is needed in rural copper areas (**RCA**) outside the UFB footprint.

1.3 Our recommendation is that copper regulation is no longer needed to promote competition in rural areas because technologies like fixed wireless access (**FWA**) and satellite are widely available and used by consumers.

1.3.1 Consumers continue to move off rural copper in significant numbers. Less than 70,000 copper connections remain across the ~223,100 RCA premises.

1.3.2 Most rural copper consumers are in coverage of three or more alternative broadband or voice technologies that are often better and cheaper than copper.

1.3.3 Copper services are increasingly expensive, prone to faults, and are less available to new customers in rural areas.

1.4 This report explains in more detail why we believe competition from alternative technologies is, and will be, sufficient to justify removing copper regulation.

1.5 We acknowledge that removing copper regulation would be a significant change given its historical importance in New Zealand's telecommunications market. It would enable Chorus to withdraw copper services that are still used by a number of consumers in rural areas.[1]

1.6 Since Chorus plans to stop using copper by 2030, we believe it is important to have a managed withdrawal process for two key reasons:

1.6.1 Firstly, to protect rural consumers during any change. Rural consumers would 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 RCAs. This could occur in one of two ways, either through legislative change or, alternatively, through appropriate undertakings provided by Chorus.[2]

1.6.2 Secondly, to allow sufficient time for non-low earth orbit satellite (**LEO**) network operators, mobile network operators (**MNO**) and wireless internet service providers (**WISP**), to make targeted, local investments, to augment their existing infrastructure capacity to better compete for copper consumers. Providers have been investing in expanding their coverage and capacity in recent years. Chorus's proposed withdrawal should not adversely impact this process.

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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. 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, and Employment (**MBIE**). Second, the copper network remains regulated in rural New Zealand to promote competition for the long-term benefit of end-users by allowing other providers to access the network. The Commission enacts this regulation through Standard Terms Determinations. 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 (eg, 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 still remain in place, and any rural premises previously subject to a TSO would remain so.

2 In its cross-submission on our Draft Recommendation Report (paragraphs 6–7), Chorus stated it believed a legislative process would be disproportionate and that it was willing to enter into appropriate undertakings.

1.7 Finally, we acknowledge that our recommendation, which is based on an assessment of competition in the market overall, cannot fully address all individual consumer concerns that this change may bring. Some households may need targeted support during the transition—support that could be considered as part of the Government's review of the Telecommunications Service Obligation (**TSO**) and/or future Telecommunications Development Levy allocations.[3, 4]

Purpose of this report

1.8 This report outlines our recommendation to the Minister on whether Schedule 1 of the Telecommunications Act 2001 (**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 (the **relevant copper services**). The Act provides for various changes including the potential removal of regulation.

1.9 The relevant copper services are the following wholesale services:[5]

1.9.1 Chorus's unbundled bitstream access (**UBA**);

1.9.2 Chorus's unbundled copper low frequency (**UCLF**);

1.9.3 Chorus's unbundled bitstream access backhaul (**UBA Backhaul**);

1.9.4 Chorus's unbundled copper local loop network backhaul (**UCLL Backhaul**); and

1.9.5 Chorus's unbundled copper local loop network co-location (**UCLL Co-location**).

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3 The Ministry for Regulation is currently undertaking a review of the telecommunications regulatory system.

4 The Telecommunications Development Levy is a levy on telecommunications providers in New Zealand that funds telecommunications infrastructure and services that are not commercially viable or affordable. It ensures the availability of services like rural broadband and the 111 emergency service, which might not otherwise be provided.

5 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.

1.10 We are required under section 69AH of the Act to complete an investigation (the **Investigation**), under Part 1 of Schedule 3 of the Act, into whether to recommend changes to the regulation of the relevant copper services by no later than 31 December 2025.[6, 7]

1.11 The Minister may accept, reject or request clarification in respect of any of our recommendations.[8]

Structure of this report

1.12 This report is structured as follows:

1.12.1 **Chapter 1** is an introduction;

1.12.2 **Chapter 2** outlines the assessment framework we have used in reaching our recommendation;

1.12.3 **Chapter 3** contains the analysis and rationale for our recommendation on whether Schedule 1 should be altered;

1.12.4 **Attachment A** outlines and responds to feedback on our draft report; and

1.12.5 **Attachment B** contains descriptions of the relevant copper services from legislation.

Our process to date and next steps

1.13 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 use for the Investigation.[9]

1.14 We received nine submissions and one cross-submission on our Approach paper.[10] We took this feedback into account and, where relevant, reflected it in our approach and analysis.

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6 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.

7 Our Approach paper and associated Gazette notice provided public notice of the Investigation on 22 April 2024.

8 Clause 5A(1)(b) of Part 1 of Schedule 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".

9 Commission "Copper Services Investigation under section 69AH of the Telecommunications Act – Approach paper" (22 April 2024).

10 Both the submissions and cross-submission on our approach paper can be found on our website.

1.15 On 12 March 2025 we published our draft report for consultation. This report set out our draft analysis and recommendation to deregulate the relevant copper services.[11]

1.16 We received 13 submissions and two cross-submissions on our draft report.[12] We took this feedback into account and, where relevant, have reflected it in our analysis. In addition, Attachment A outlines and responds to the feedback received in these submissions.

1.17 Table 1.1 sets out the process 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 report	Draft report and recommendation as to whether Schedule 1 should be altered with regard to the relevant copper services	12 March 2025
Submissions	Submissions on our draft report due	9 April 2025
Cross-submissions	Cross-submissions on our draft report due	5 May 2025
Final report with recommendation to the Minister (ie, this report)	**Final report with recommendation as to whether Schedule 1 should be altered with regard to the relevant copper services**	**21 August 2025**

1.18 Please note that the final report is primarily based on the latest full set of data available to the Commerce Commission (**Commission**) as at 30 June 2024. We have indicated where we have used data from a different point in time where appropriate throughout.

[11] Commission "Copper Services Investigation under section 69AH of the Telecommunications Act – Approach paper" (22 April 2024).

[12] Both the submissions and cross-submissions on our draft report can be found on our website.

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 recommendation.

2.2 This chapter is structured as follows:

2.2.1 legal framework; and

2.2.2 economic framework.

2.3 We had regard to submissions and cross-submissions on our Approach paper and made updates to the assessment framework accordingly. While Chorus and Tuatahi agreed with our legal framework,[13] and One NZ agreed with our economic framework,[14] we did not receive any substantive feedback on our assessment framework beyond general agreement in submissions on our draft report.

2.4 We are also mindful of the wider regulatory landscape including TSOs, standard terms determinations (**STDs**), existing Codes and the potential implications of our 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. There are no changes from the framework used in our draft report.

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[13] Chorus "Submission on Copper Services Investigation Draft Recommendation" (9 April 2025), paragraph 9; and Tuatahi "Submission on Commerce Commission Draft recommendation report for the Copper Services Investigation under section 69AH of the Telecommunications Act" (9 April 2025), paragraph 7.

[14] One NZ "Submission on Copper Services Investigation draft report" (9 April 2025), paragraph 2.

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 "Deregulating copper fixed line access services". Part 2AA was inserted by the Telecommunications (New Regulatory Framework) Amendment Act 2018. The purpose of Part 2AA is to:[15]

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.[16]

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;[17] 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.[18]

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15 Telecommunications Act, s 69AA.
16 Telecommunications Act, s 18(1).
17 Telecommunications Act, s 18(2).
18 Telecommunications Act, s 18(2A).

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.[19, 20]

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.[21]

2.15 In making our decision or recommendation we are required to:[22]

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;[23] 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 the Minister provides to the Commission.[24] 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 we are required to complete the Investigation 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.[25]

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19 While s 69AH was not explicitly discussed, the Parliamentary debates on the 2018 Amendment Act (which introduced s 69AH into the Act) show 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.

20 Telecommunications Act, s 69AA(c).

21 Telecommunications Act, sch 3 cl 1 and sections 66 and 67.

22 Telecommunications Act, s 19.

23 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.

24 Telecommunications Act, s 19A(1).

25 Telecommunications Act, s 69AH(2).

2.19 As such, we must follow the timing in section 69AH, instead of clauses 1 and 4(1) of Schedule 3, and complete our Investigation by 31 December 2025.[26, 27] 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:

2.20.1 The Commission must give public notice of the commencement of an investigation under Part 1 of Schedule 3.[28] Once notice has been given, a provider of the relevant service can submit voluntary undertakings within 40 working days of the Investigation commencing.[29] 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:[30]

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.[31]

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.[32] Failure to comply with the statutory deadline does not invalidate the report.[33]

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:[34]

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26 Clause 1 of Schedule 3 is expressly stated as being subject to section 69AH (see Schedule 3 cl 1(7)).

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

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

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

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

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

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

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

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

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.

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.[35] 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:[36]

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 proposed alteration(s), our final report may cover:[37]

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;

35 Telecommunications Act, sch 3 cl 1(1).
36 Telecommunications Act, sch 3 cls 2 and 4.
37 Telecommunications Act, sch 3 cl 4, and s 66(1)(c).

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;[38] and

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:[39]

2.25.1 seek clarification or additional information on any point, or seek reconsideration of a particular issue from us;

2.25.2 accept our recommendation that Schedule 1 be altered 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.[40]

Economic framework

Overview

2.27 This section sets out the economic framework we have applied in reaching our recommendation. There are no changes from the framework used in our draft report.

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.

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

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

40 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.

2.28.3 **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 with the potential alterations to regulation or deregulation) 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.

2.30 Our reviews are forward-looking and analyse 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.[41] What is most appropriate for a specific review will be determined on a case-by-case basis.[42] 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.

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41 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.

42 We have previously indicated that we expect Schedule 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 Schedule 3 reviews using this framework could consider adopting regarding the timeframe for consideration.

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 areas), which, alongside step 2 below, inform 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 service 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.

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 1 and 2 are sometimes referred to as 'defining the market'.[43]

[43] 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.

Step 3: Assessing competition

2.39 The third step involves considering 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.[44]

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;

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, by comparing the factual (the future state with existing regulation) against the counterfactual (the future state with the potential alterations to regulation or deregulation), to determine 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.

[44] 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.

2.44 The first step in this process is to identify the different options available (counterfactuals) to compare with the status quo (factual). These include the range of options set out in section 66 of the Act and can include alterations to current regulations, or 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 economic 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 instead focus counterfactuals on amending or adding a service.

2.46 Considerations when comparing the factual and counterfactual(s) 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;[45]

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

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(s) 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.[46]

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45 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.

46 Telecommunications Act 2001, sections 18(2) and (2A). The High Court in Chorus Ltd versus Commerce Commission [2014] NZHC 690 at [34] 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.

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.[47]

2.49 We received several submissions on our Approach paper and draft report outlining additional evidence or information we should consider as part of the Investigation. Where relevant, we have incorporated this evidence and information into our analysis.

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 network coverage and capacity of alternative services;

2.50.3 the quality and price of alternative services; and

2.50.4 end-user satisfaction and switching data.

2.51 This evidence for the final report has been primarily sourced from existing Commission data sources. Unless specified otherwise, it is accurate as at 30 June 2024, or for the 12 months to 30 June 2024. 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 issues.[48]

2.52 We also make use of the Measuring Broadband New Zealand (**MBNZ**) reports and our Annual Telecommunications Monitoring Report (**AMR**). Where available, we have also used relevant public information, 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. We have used updated data in producing this final report.

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47 Commission "Copper Services Investigation under section 69AH of the Telecommunications Act – Approach paper" (22 April 2024), chapter 10.

48 For example, we collect data from most, but not every RSP across New Zealand. Some small RSPs with few consumers are not included in the data set.

Chapter 3 Recommendation on whether to alter Schedule 1

Chapter purpose and structure

3.1 This chapter sets out our 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 recommendation (Table 3.1).
- 3.2.2 Brief background to copper regulation.
- 3.2.3 Assessment for each relevant copper service through:
  - 3.2.3.1 defining the relevant service (step 1);
  - 3.2.3.2 identifying 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(s) with regard to the section 18 purpose (step 4).

Summary of our recommendation

3.3 Our recommendation to the Minister is to deregulate the relevant copper services. These services use the same copper infrastructure, and several services 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 recommendation is set out in Table 3.1.

Table 3.1 Summary of our recommendation

Relevant copper services	Recommendation
Chorus's unbundled bitstream access (UBA)	The UBA service should be omitted from Schedule 1
Chorus's unbundled copper low frequency (UCLF)	The UCLF service should be omitted from Schedule 1
Chorus's unbundled bitstream access backhaul (UBA Backhaul)	The UBA Backhaul service should be omitted from Schedule 1
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

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

3.5 Our recommendation also highlights the consumer and market implications, should the Minister accept our recommendation. Namely, deregulation would enable Chorus to withdraw some copper connections, which would impact a number of consumers (some more than others). We reiterate our view that a managed withdrawal process would be important to protect consumers as they shift from copper services to alternatives in the coming years.

Background to copper regulation

3.6 As we outlined in in our Approach paper,[49] 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.

3.7 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 open up this bottleneck infrastructure by determining price and non-price access terms for these services.

3.8 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.[50]

3.9 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.

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

50 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; and Chorus "Cross Submission on Copper Services Investigation Approach Paper" (11 June 2024), paragraphs 9–13.

3.10 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 telecommunications services at a fixed location in retail markets.

3.11 However, telecommunications is a dynamic industry where new services are frequently introduced, and legacy services are withdrawn or retired over time. Since 2016, there have been a number of important developments in the industry. In particular, most New Zealanders can now access modern fibre networks, and where they cannot, alternative technologies such as FWA and satellite are becoming more available.

3.12 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".[51] Additionally, major RSPs have shifted away from selling copper services, now primarily only offering them where they do not have their own FWA network coverage.[52]

3.13 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 versus ancillary services

3.14 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.

3.15 We set out our proposed descriptions of the relevant copper services in our Approach paper. We did not receive any submissions on the service descriptions and used them as proposed to form our draft and final reports.

3.16 Two services (UBA and UCLF) 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 Legislation limits their use so that these ancillary services cannot be used for any purpose other than to support the provision of UBA and UCLF.[53] 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 final findings for UBA and UCLF.

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51 Chorus "Submission on Copper Services Investigation Approach Paper" (22 May 2024), paragraph 8a.

52 See websites of Spark, One NZ and 2degrees (accessed 7 May 2025).

53 Telecommunications Act, Schedule 1.

Geographic area definition

3.18 We focus our Investigation on what we define as 'rural copper areas' (RCAs): areas that include rural premises with a copper line enabling access to a copper-based service. As at 30 June 2024, there are ~223,100 premises in RCAs which are broken down into:[54]

3.18.1 ~216,100 rural premises recorded by Chorus as having a copper line to the premises (coverage); and

3.18.2 ~7,000 additional rural premises which have an active copper-based service (but which are not captured in Chorus's coverage data).[55]

3.19 Chorus's supply of the relevant copper services is regulated outside of specified fibre areas (**SFAs**). SFAs are areas where fibre has been deployed under the Government's UFB initiative. There are ~1.99m premises in these areas.[56] Copper regulation has already fallen away in SFAs by operation of law. We use the term 'urban' to describe SFAs.

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' to describe such areas.[57]

3.21 We understand there are ~360,100 rural premises in New Zealand. As noted above, ~223,100 of these premises can access a copper service or have an active copper connection, leaving ~137,000 premises beyond the reach of the copper network ('remote' premises). We have included the ~223,100 premises with copper access in our analysis.

3.22 In summary, we use the terms:

3.22.1 'urban' to refer to the ~1.99m premises in SFAs (out of scope of the Investigation);

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54 This uses Chorus coverage and connection data from 30 June 2024. We note this figure is greater than that in our draft report (~215,700). This is due to the second year of data collection being more accurate, rather than 'new' copper connections increasing.

55 As stated previously, the data used for the analysis of geographic areas (coverage and 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. As a result, we have taken a conservative approach and 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.

56 In our draft report, we used figures from the Crown Infrastructure Partners quarterly connectivity update (1.84m urban premises). In the final report, we have aligned our data source with that which we use to calculate rural premises (Commission data), which has caused the increase by 150,000 premises.

57 We use this definition of 'rural' in the data we collected for the RCS as well as in the 2024 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.

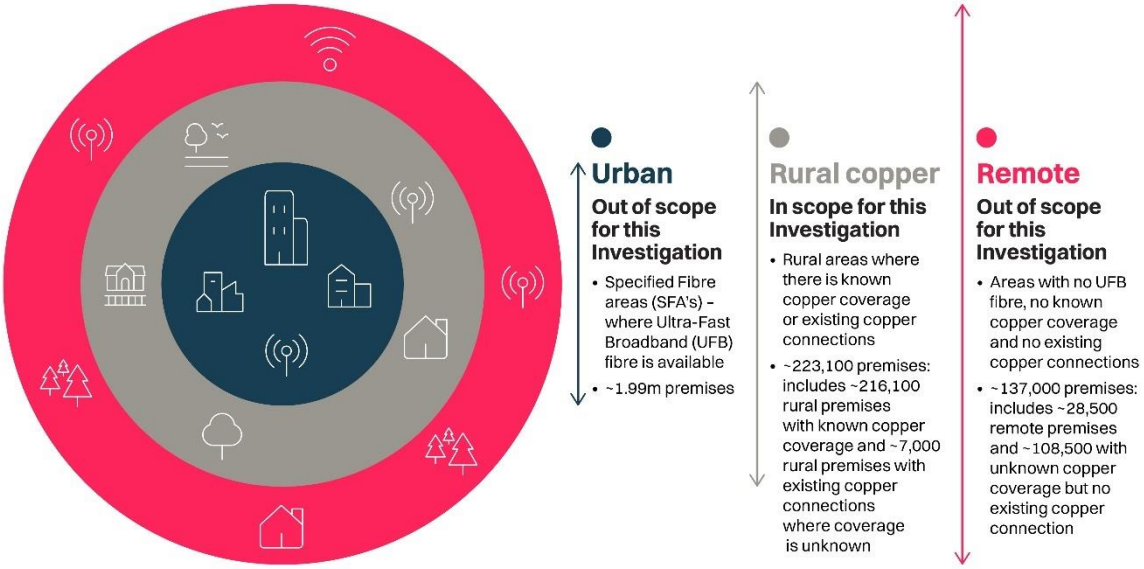
3.22.2 'rural' to refer to the ~360,100 premises that are beyond SFAs;

3.22.3 RCAs to refer to rural premises that are connected to or covered by Chorus's copper network (~223,100 in scope of the Investigation); and

3.22.4 'remote' to refer to the ~137,000 rural premises that lie beyond Chorus's copper network (out of scope).

3.23 Figure 3.1 illustrates these different areas.

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 to copper services present (by aggregating premises-level data). We responded to submissions on this proposal in our draft report.[58]

3.27 We believe that using the number of alternatives present (aggregating premises-level data) remains the most appropriate way to split RCAs based on differences in competition. Therefore, this is the approach we have taken in forming our recommendation.

Chorus's unbundled bitstream access (UBA) service

Recommendation

3.28 Our recommendation is that the UBA service is omitted from Schedule 1 of the Act. This is the same recommendation as in our draft report.

3.29 The reasons for this 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 Consumers in RCAs are in coverage of a range of retail broadband alternatives, including FWA and satellite.
- 3.29.3 These alternatives are generally similar to (or better than) 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 RSPs are no longer selling or are deprioritising copper connections in favour of alternative technologies, making it harder for new consumers to access a copper service.
- 3.29.6 Competition exists for retail broadband services in RCAs and is likely to continue to grow in the future.
- 3.29.7 Omitting the service from Schedule 1 would best promote the purpose outlined in section 18 of the Act.

[58] Commerce Commission "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" (12 March 2025), Attachment A.

Stakeholder views on our draft UBA recommendation

3.30 Some submitters agreed with our draft recommendation that UBA (along with the other relevant copper services) should be deregulated,[59] while others disagreed.[60] There were some key themes from submitters on our draft report:

3.30.1 Angela, Gravity, Neill, Rural Connect and Terence questioned the appropriateness of some alternative services (eg, LEO and FWA) as close substitutes for copper due to reasons such as cost, capacity, actual performance and pricing.[61] We have included updated and additional data in this report to address these concerns.[62]

3.30.2 Rural Connect and Terence expressed doubt over some of our coverage analysis.[63] We have clarified and expanded our analysis, and have also updated our coverage figures with recently available data.[64]

3.30.3 Gravity, Rural Connect and Rural Women New Zealand highlighted that installation costs of alternative services are an additional hurdle some consumers may face when switching to an alternative technology.[65] We have sourced and included installation costs in our analysis.[66]

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59 Chorus "Submission on Copper Services Investigation Draft Recommendation" (9 April 2025), paragraph 2; One NZ "Submission on Copper Services Investigation draft report" (9 April 2025), paragraph 2; Spark "Submission on Copper services investigation draft recommendation report" (9 April 2025), paragraph 3; TCF "Submission on Copper Services Investigation draft report" (9 April 2025), paragraph 3; and Tuatahi "Submission on Commerce Commission Draft recommendation report for the Copper Services Investigation under section 69AH of the Telecommunications Act" (9 April 2025), paragraph 2.

60 Bobby "Submission on Copper Services Investigation draft report" (9 April 2025), page 1; Dave "Submission on Copper Services Investigation draft report" (7 April 2025), page 1; Neill "Submission to the Commerce Commission: Copper Services Investigation under Section 69AH of the Telecommunications Act" (9 April 2025), page 1; and Terence "Submission on Copper Services Investigation draft report" (9 April 2025), page 1.

61 Angela "Submission on Copper Services Investigation draft report" (8 April 2025), page 1; Gravity "Submission on Copper Services Investigation under section 69AH of the Telecommunications Act – Draft Recommendation Report" (8 April 2025), pages 1–3; Neill "Submission to the Commerce Commission: Copper Services Investigation under Section 69AH of the Telecommunications Act" (9 April 2025), pages 1–4; Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraphs 2, 4–8, 12–17, 19–25, 26–28, 32–33, and 37–38; and Terence "Submission on Copper Services Investigation draft report" (9 April 2025), pages 1–2.

62 Capacity is discussed at paragraphs 3.59–3.64; pricing at 3.66–3.74 and performance at 3.75–3.85 of this report.

63 Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraphs 7, and 29–31; and Terence "Submission on Copper Services Investigation draft report" (9 April 2025), pages 1–2.

64 At paragraphs 3.59–3.64 of this report.

65 Gravity "Submission on Copper Services Investigation under section 69AH of the Telecommunications Act – Draft Recommendation Report" (8 April 2025), page 3; Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraphs 4–8, 12–13, 23 and 38; and RWNZ "Submission on Copper Services Investigation" (28 March 2025), paragraph 7.

66 At Table 3.3 and Figure 3.7 of this report.

3.30.4 Angela, Neill, Rural Connect and Terence all highlighted that the 'average' consumer outlined in our analysis will not be what many consumers actually experience.[67] We understand that not all consumers will have the same experience when switching to a new service. The alternative options available will vary from place to place. However, our analysis suggests almost all consumers within RCAs have access to an option that provides similar or better connectivity than their existing copper service.[68]

3.30.5 Rural Connect and Spark suggested we improve how we present some of our analysis to ensure it is clear, accurate and easy to understand.[69] We agree and have done this throughout our final report.[70]

3.31 Attachment A responds to specific points received from submissions and cross-submissions.

Assessment for Chorus's UBA service

Defining the service (Step 1)

3.32 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.

3.33 A DSL connection allows end-users to watch, listen, play, post, and chat over the internet. Different DSL technologies enable different uses:

3.33.1 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.

3.33.2 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.

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67 Angela "Submission on Copper Services Investigation draft report" (8 April 2025), page 1; Neill "Submission to the Commerce Commission: Copper Services Investigation under Section 69AH of the Telecommunications Act" (9 April 2025), pages 1–4; Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraphs 2, 4–8, 12–17, 19–25, 32–33, and 37–38; and Terence "Submission on Copper Services Investigation draft report" (9 April 2025), pages 1–2.

68 See paragraphs 3.53–3.57, 3.75–3.85, Figure 3.4 and Figure 3.8, and Table 3.2.

69 Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraphs 2, 4–8, 12–17, 19–25, 32–33 and 37–38; and Spark "Submission on Copper services investigation draft recommendation report" (9 April 2025), paragraph 13.

70 For example, Figure 3.8 and Figure 3.9 where we have highlighted data from different sources visually to call out the difference.

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

3.34 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

3.35 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.

3.36 Three wholesale alternatives that we see as being included in the above market are available in rural areas:

3.36.1 FWA—some RSPs wholesale their FWA services;

3.36.2 Non-cellular FWA—some WISPs wholesale their digital microwave radio services; and

3.36.3 Satellite—four geostationary satellite (**GEO**) providers retail satellite services wholesaled by Kacific and Optus.

3.37 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.

3.38 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.

3.39 Price increases in a wholesale input (such as UBA) are generally passed onto consumers (in part or fully),[71] 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

3.40 We consider the retail broadband market to comprise services that provide end-users with a broadband connection.

3.41 Several retail broadband alternatives are available to varying degrees in RCAs, including:

[71] Over the two years to 30 June 2024, the wholesale price of copper broadband services increased by 13.29%. In general, over that period, RSPs have passed on some or all of that increase.

3.41.1 FWA;

3.41.2 non-cellular FWA;

3.41.3 mobile data;

3.41.4 hybrid fibre-coaxial (**HFC**);

3.41.5 fibre—where non-regulated networks are present outside of SFAs;[72] and

3.41.6 satellite—GEO and LEO.

3.42 Our view is that these are all in the retail broadband market and could provide indirect competitive constraint on UBA.[73]

3.43 These alternatives are not reliant on 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 3 applies were UBA regulated or not.

Analysis of competition (Step 3)

3.44 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.

3.45 We consider that assessing competition in the retail broadband market requires analysis of:

3.45.1 the market structure;

3.45.2 whether alternatives represent close substitutes; and

3.45.3 actual switching behaviour.

Approaching competition from wireless networks

3.46 Our analysis of broadband competition leans heavily on two key concepts: coverage and commercial availability.[74]

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72 Throughout this report we use 'fibre' to describe unregulated fibre networks present outside of SFAs.

73 Except mobile data. Although mobile data may be available in RCAs, we do not consider it a close substitute for copper broadband due to data caps and higher per-GB costs. This is discussed at paragraph 3.54.

74 These concepts are defined for the particular purposes of this report, and our analysis of them are not intended to apply outside of our assessment of competition from wireless networks within this report.

3.46.1 Coverage means that a network is physically present in a certain area—ie, it means some level of network signal can be detected at that location.

3.46.1.1 Wireless coverage can be impacted by a multitude of factors including distance from the wireless site, vegetation, walls, and hills.

3.46.1.2 Coverage is usually estimated using models that predict how networks work, but these models cannot always account for everything that happens in the real world. As a result, there are often small differences (both underestimates and overestimates) between what the model shows and what actually exists.

3.46.2 Commercial availability means the network can actually handle users and provide good service (ie, in the case of wireless networks, the network signal is strong enough to support a broadband and/or voice service, and sufficient backhaul capacity is provisioned at the network site). If the network has spare capacity, it can take on more users, without making the service worse for current users.

3.46.2.1 Commercial availability in wireless networks is more changeable than coverage. The underlying capacity is influenced by real-time consumer use, daily consumer switching, network management and investment choices by the provider.

3.47 For fixed line networks (like copper), coverage and commercial availability go hand in hand—if the network is there, it can usually handle consumer demand. However, wireless networks are different. A wireless network might cover an area, but it might not have enough capacity to serve everyone well. In these cases, network providers may restrict use through data caps or stop selling services in that location (until such time as existing capacity is freed up or additional capacity is deployed).

3.48 Our draft report may have overstated commercial availability on a network-by-network basis—primarily in relation to FWA networks. However, as we set out below,[75] we do not consider that this misstated aggregate commercial availability (ie, at least one of the three FWA networks is expected to have spare capacity to serve consumers switching away from copper at a particular location).

[75] See paragraphs 3.59–3.62.

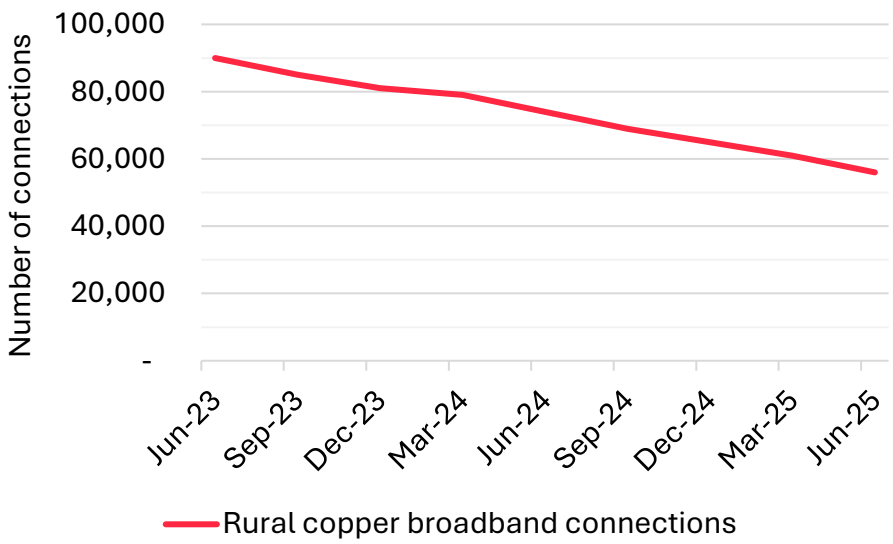
Market structure

Copper broadband in RCAs

3.49 Chorus owns the copper network across the country, including in RCAs, where there are ~223,100 premises (with access to the copper network and UBA). However, the number of premises with a copper broadband connection has been steadily reducing in RCAs for a number of years.

3.50 Rural copper broadband connections have decreased by 18% in the year to 30 June 2024, down from 90,000 to 74,000.[76] As at 30 June 2025, there were 56,000 copper broadband connections remaining in RCAs.[77] Figure 3.2 shows this declining trend.

Figure 3.2 Rural copper broadband connections

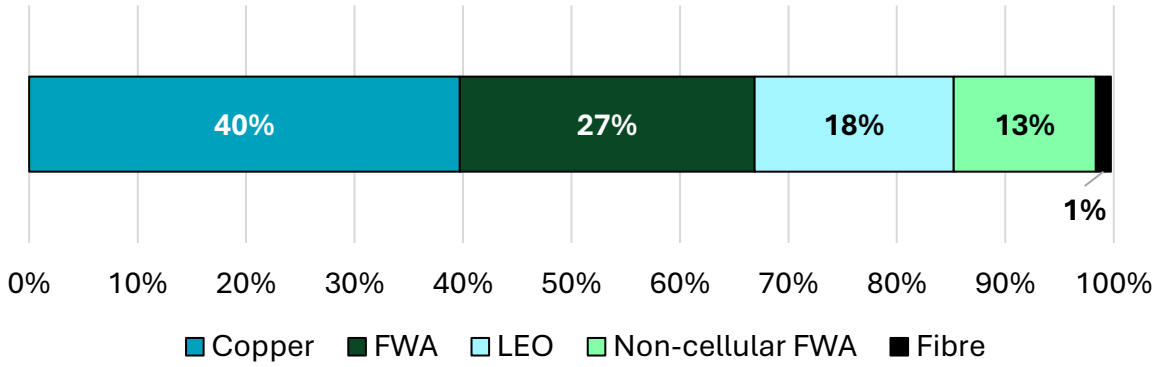


3.51 As at June 2024, broadband connections in RCAs were provided over copper, FWA, satellite or non-cellular FWA as shown in Figure 3.3. There were also a small number of fibre connections.

[76] Commission 2024 AMR from Commission data.

[77] See Chorus investor announcements for the quarterly connections updates.

Figure 3.3 Share of broadband connections by technology in RCAs[78]



3.52 Providers of copper alternatives, notably the largest national level RSPs offering FWA, have deprioritised the sale of copper connections. Some no longer offer copper services for sale. New consumers are generally only able to purchase a copper service where no alternative RSP services are available.

Coverage of copper alternatives

3.53 For the ~223,100 premises in RCAs:

3.53.1 96% are within coverage of at least one FWA network, with 11% in coverage of a 5G network;[79]

3.53.2 62% are within coverage of at least one non-cellular FWA network;

3.53.3 0.4% are within coverage of One NZ's HFC network;

3.53.4 0.2% are in coverage of a fibre network;[80] and

3.53.5 all premises with sufficient line of sight to the sky are in coverage of both GEO and LEO satellite networks.

3.54 We have excluded mobile data from our analysis as we do not view it as a close substitute to a copper broadband service. This is because data caps are common and the cost per GB of data is generally much higher than on copper.[81]

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78 Commission data. Values do not sum to 100% due to a small number of GEO and HFC connections.

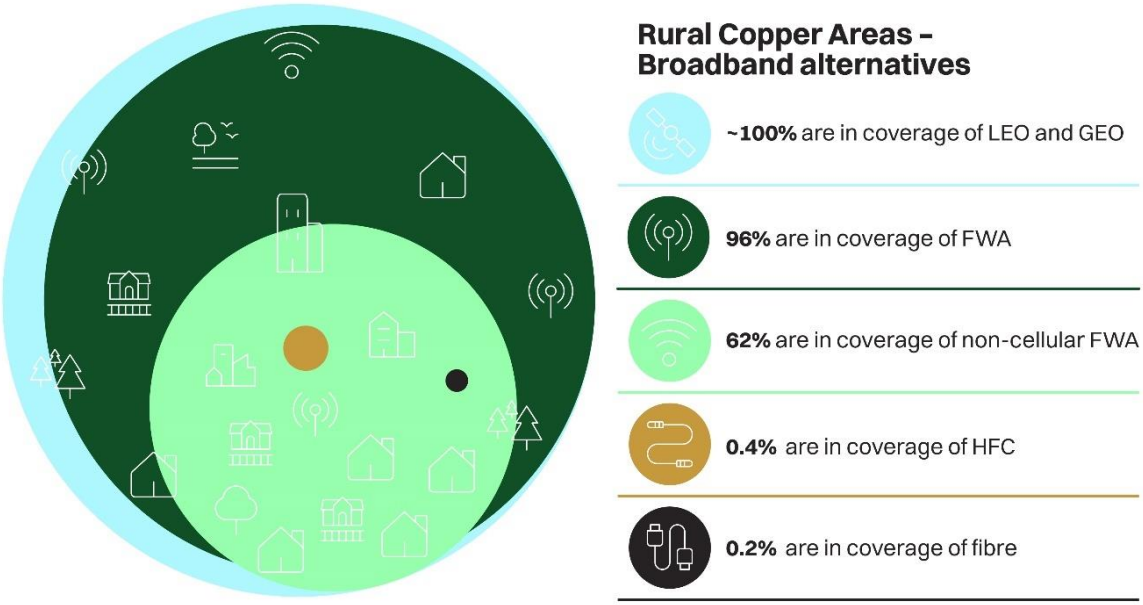
79 ~86% of premises in RCAs are in coverage of FWA from all three MNOs, while 13% are in coverage of FWA from only two MNOs. ~1,500 premises are in coverage of only one MNO.

80 Commission data.

81 For example, as at 30 June 2025, for the average monthly broadband usage on copper of 312GB per month, copper plans (both ADSL and VDSL) equate to between $0.24–$0.37 per GB of data used. Most mobile data plans have a much lower data cap or limit on max speed data meaning to use 312GB per month would either be incredibly slow and/or have a huge cost. While several unlimited max speed mobile data plans have a similar per GB cost to copper ($0.26–$0.29 per GB), these plans are subject to fair use policies which we could expect would not cover usage per month of 312GB. Consumers would likely have to switch plans or would be capped on usage and/or speed.

3.55 The coverage of different alternatives is (conceptually) highlighted in Figure 3.4.

Figure 3.4 Coverage of broadband alternatives in RCAs[82]



3.56 Taking a consumer perspective, Table 3.2 outlines the percentage of premises in RCAs which are in coverage of different numbers of retail broadband alternatives.

Table 3.2 Coverage of alternative broadband technologies[83]

Number of broadband technologies providing coverage	% of premises in RCAs who are in coverage
1	~100%
2	~100%
3	97.8%
4	63.5%
5	8.1%
6	<0.3%

82 Throughout this report we note that "~100%" of premises in RCAs have access to LEO and GEO. Even though LEO and GEO providers advertise their services being available across all of New Zealand (see Starlink, Gravity and Brdy websites), 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 commercial availability.

83 This table takes a consumer perspective by counting how many alternatives are available at each RCA premises. For example, 97.8% of premises that can access three broadband alternatives (LEO, GEO and one other) likely includes all 96% 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.

3.57 Nearly 98% of premises in RCAs are in coverage of three alternative broadband technologies (the two satellite technologies plus one other), while over 60% are in coverage of four. These figures are slight increases from our draft report.

3.58 Of the ~2.2% of premises in RCAs for whom our data shows that the only alternative to copper broadband is via satellite service (LEO or GEO), we estimate:[84]

3.58.1 ~20% are unconnected, meaning they do not have a fixed broadband connection of any kind;[85]

3.58.2 ~38% have an existing copper broadband service;

3.58.3 ~30% use a LEO broadband service; and

3.58.4 ~3% have a GEO broadband connection.

Commercial availability of copper alternatives

FWA

3.59 We received confidential network capacity data from two of the three MNOs. The data, which is as at 30 June 2024, reports 4G and 5G FWA sector capacity at a national level.[86] Both networks had a mix of constrained and spare 4G and 5G FWA capacity across their networks.

3.60 Separately, we received 4G FWA capacity data (as at November 2024) from the third MNO—data specific to its copper customers within RCAs. While this network also has capacity constraints, the third MNO improves the aggregate FWA capacity available in RCAs.[87]

3.61 So while one MNO may have localised capacity constraints on its FWA network in the form of stop sells, at least one of the other two MNOs is likely to have commercial availability to accommodate new customers shifting off copper broadband. Where demand for FWA exists, and a constrained provider elects not to invest in additional capacity, there might be a consequential impact on another provider being asked to serve a higher-than-expected level of demand in that location. However, this situation only exists where multiple MNOs are not prepared to invest and compete to serve additional FWA demand.

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84 These figures include premises which might have two properties on a land parcel, and thus multiple broadband connections. As such, figures may not add to 100%.

85 Note, our data on unconnected premises is limited and of varying quality.

86 Mobile sites have multiple sectors to serve the surrounding area.

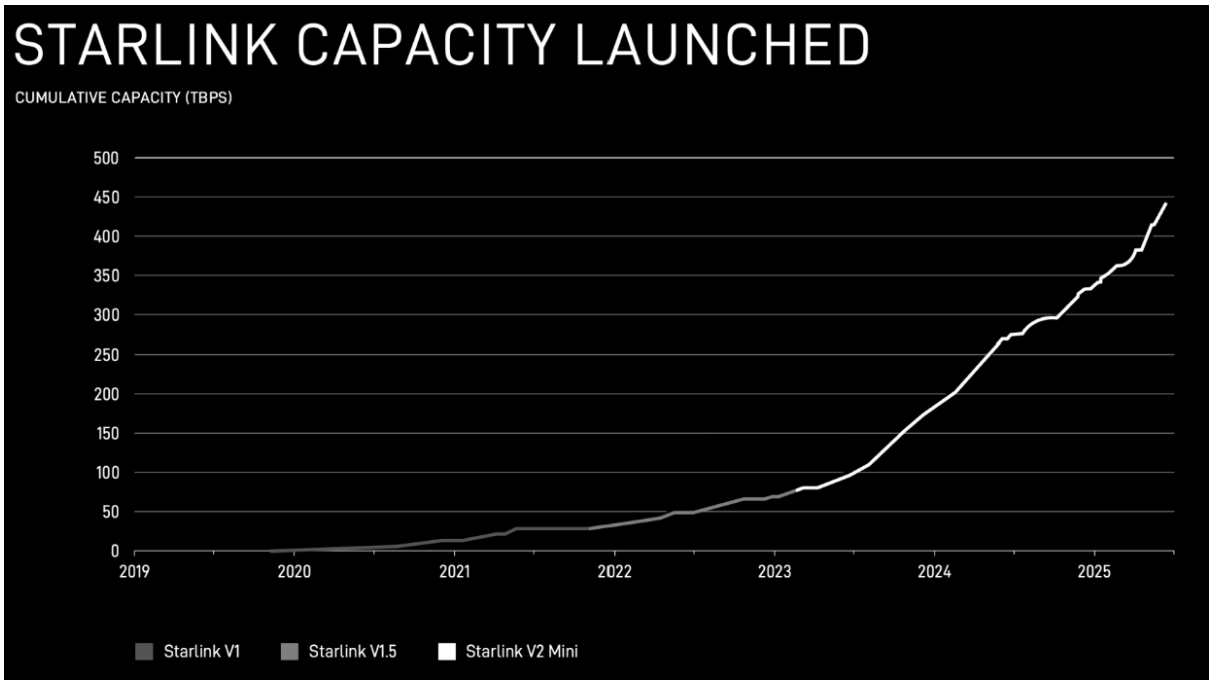
87 [redacted]

3.62 Building more towers is a further way to increase FWA commercial availability. We note that each of the MNOs, when they sold their towers to TowerCos from 2022, obtained agreements for new towers to be built over the next decade. While these total over 1,500 new towers, it is unclear whether they will be used to extend service or to infill in mostly urban areas to support 5G and future generations of technology.[88]

LEO

3.63 In 2019, total global satellite capacity was just 2.3Tbit/s.[89] Figure 3.5 illustrates the exponential growth of Starlink's global network capacity (now approaching 450Tbit/s), which has coincided with its entry into the New Zealand market.

Figure 3.5 Starlink capacity launched[90]



[88] As part of the commercial agreements to access spectrum for 5G, MNOs are also 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).

[89] See Analysys Mason "SpaceX Starlink and Amazon Kuiper look set to dominate the satellite connectivity market" (July 2024).

[90] SpaceX "Starlink Network Update" (July 2025, accessed 18 July 2025).

3.64 Looking ahead, Starlink's upcoming deployment of its V3 satellites (which have ten times the downlink and 24 times the uplink capacity of its V2 Mini satellites)[91] would, with the same size constellation currently, support the needs of ~31 people per square km.[92] Rural areas of New Zealand rarely get near this density level. This Starlink capacity, coupled with the expected entry of a LEO competitor, Project Kuiper, suggests a sufficient level of LEO network capacity should be available in New Zealand.[93, 94]

Close substitutes

3.65 Having determined the structural aspects of competing networks in the copper broadband market, we now 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.[95]

Price comparison

3.66 Table 3.3 summarises the equipment and monthly price of broadband services over a range of alternative technologies (including ADSL and VDSL for comparison). As the average data usage on copper is 312GB per month,[96] we have excluded plans with a data cap below 300GB per month. However, we note that there are cheaper plans available across different technologies with lower data limits, which will suit consumers with below-average data needs (see Table 3.5 for plan data caps).

3.67 While many consumers will be able to setup and install the equipment themselves, some will not be so able. Professional installation is required for some non-cellular FWA and most GEO services. We include these costs to better reflect the full cost to switch to an alternative service.

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91 SpaceX "Starlink Progress Report V11" (2025).

92 Aetha Consulting "LEO satellites and terrestrial networks: competitors or complements?" (30 July 2025). With an average New Zealand household size of 2.7 people per premises, 12,000 V3 Starlink satellites would be able to support ~31 people per square km. A full planned constellation (42,000) of V3 satellites would support nearly 100 people per square km.

93 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.

94 See Analysys Mason "SpaceX Starlink and Amazon Kuiper look set to dominate the satellite connectivity market" (July 2024).

95 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.

96 As of 30 June 2025. Chorus "Q4 FY25 Connections Update" (11 July 2025), slide 9.

Table 3.3 Price of retail broadband plans by technology[97]

Technology (plan)	Monthly price	Customer premises equipment (CPE) cost	Setup / installation cost
ADSL	$75 – $117	Included, BYO or rented for $5 per month	Free with fixed term. Cost can range from $55 – $607 depending on requirements
VDSL	$84 – $117		
4G FWA	$50 – $94	BYO, $0 – $199	Included
4G FWA (Rural)[98]	$129 – $189	BYO, $0 – $199	$0 – $199
5G FWA	$65 – $85	BYO, $0 – $150	Included
Non-cellular FWA	$80 – $155	Included	$0 – $599
HFC	$73	Included	Included
Fibre (30)[99]	$80	Included	$400
Fibre (50)	$60	$149 or $5 p/m	Included
Fibre (300)	$75 – $95	$0 – $149 or $5 p/m	$0 – $99
Fibre (Max)	$100 – $120	$0 – $149 or $5 p/m	$0 – $99
GEO	$109 – $200	$0 – $19 p/m	$495 – $1999
LEO	$159	$0 – $599	$0 – $199
LEO (Lite)	$79	$599	$0 – $199

3.68 Table 3.3 shows that there is a range of alternatives available for a similar (including some higher and some lower) monthly price to retail copper broadband services. There is a wide range of prices based on speed, data caps, provider and location.

3.69 Figure 3.6 shows the actual average monthly prices being paid by rural consumers on each technology. It suggests that many rural consumers are purchasing standard 4G FWA plans discussed in Table 3.3 (not just designated as 'rural' by the provider), as the actual average 4G FWA spend is less than the cheapest 'rural' 4G FWA plan cost.

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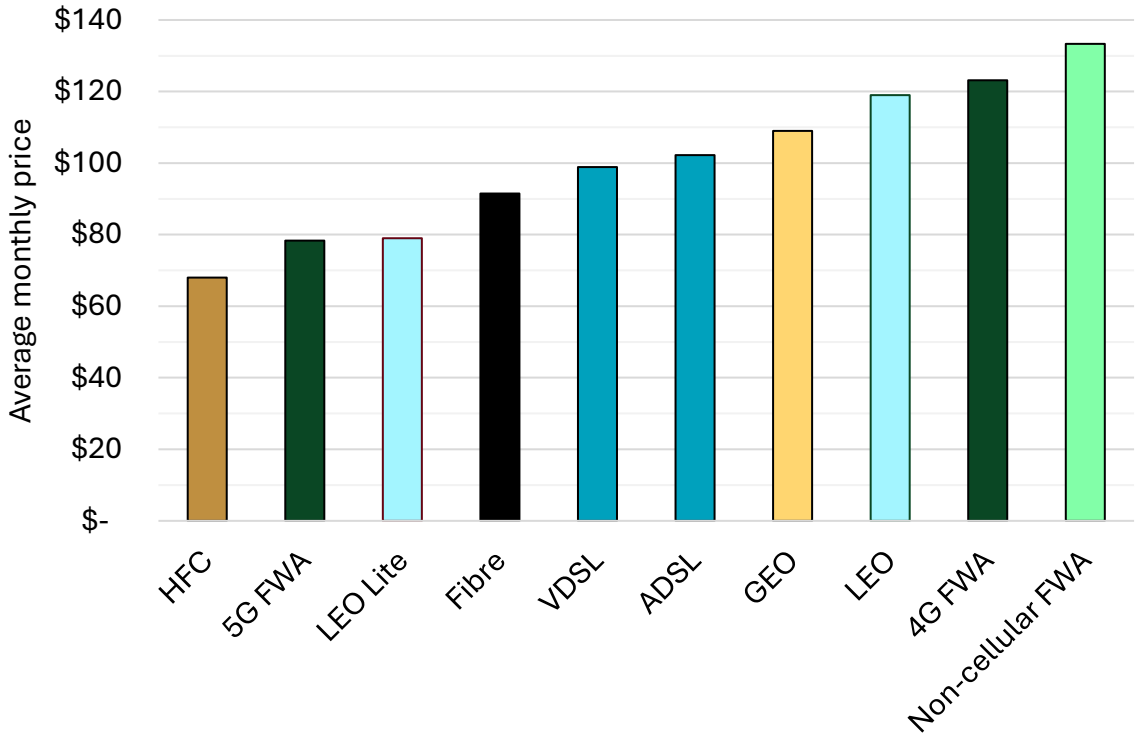
97 Table 3.3 summarises the retail prices of residential broadband plans offered by a selection of retail providers using differing technologies. We cannot confirm the exact availability of these, eg, if they are available in rural areas only, urban only or both. As such, what a specific rural premises will have available to them will likely differ. We have excluded plans with 'urban' in the name or ones clearly targeted toward urban centres. Source: 2degrees, Amuri, Aonet, Brdy, Farmside, Gravity, Inspire, Lightwire, Mercury, One NZ, Primo, Slingshot, Spark and Starlink websites (accessed 7 May 2025).

98 Some FWA providers have plans designated rural. It is often not clear what each provider defines as 'rural', nor is rural defined as we have done (outside SFAs). Some of the plans designated rural require additional equipment and are more costly than other FWA services. In response to submissions and for added clarity, in this final report we have separated out the plans that specify 'rural' in their name from standard FWA plans. What is available to RCA premises would only be known by testing house by house.

99 The fibre plans in this table 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. These plans are not widely available due to the small fibre footprint.

Figure 3.6 Average rural broadband plan monthly price[100]



3.70 While most alternatives include the specific CPE required (or the CPE can be rented), several broadband technologies such as non-cellular FWA and LEO have higher upfront equipment costs. These units are sometimes available refurbished or on sale for a cheaper price. Starlink, for example, is currently offering $0 CPE in most areas of New Zealand when signing up for a 12-month full speed plan ($159 per month).[101]

3.71 Most technologies have no setup or installation costs, with the consumer able to simply 'plug and play'. However, some technologies do require professional installation and thus a fee is charged, which can vary depending on contract length and install difficulty. In particular, GEO services, which often require an additional rental fee for the equipment, have high upfront installation costs (up to $1,999) with exact fees often dependent on contract length. In some cases, WISPs can also charge up to $599 for a non-cellular FWA installation, depending on the equipment needed at a consumer's premises.

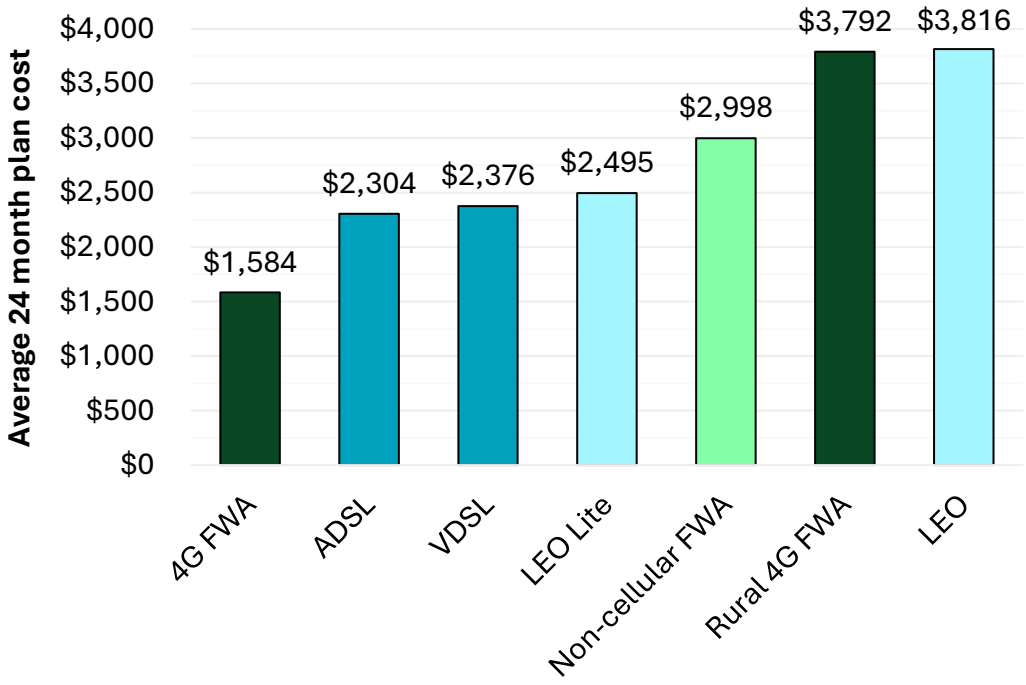
100 Commission data.

101 See Starlink website accessed and current as of 23 May 2025. Offer available across all of New Zealand except for Auckland.

3.72 It is important to note that a consumer's ability to self-install or setup the equipment will vary. Some consumers may require professional help to install a wireless receiver in a high place or remove obstructions for a clear line of sight. While our view is that most consumers will be able to set the equipment up themselves (or with the help of family, neighbours or friends), that will not be the case for all. Submissions primarily highlighted the cost of LEO installations (where installation is required). We note that Starlink is now offering roof installation for $199 in New Zealand.[102]

3.73 Using the price information from Table 3.3, we have extrapolated average monthly prices and upfront equipment costs over a 24-month period in Figure 3.7. This analysis is particularly relevant for LEO Lite, where the consumer faces a significant upfront cost, which over time is offset by lower monthly prices. Over this period, spend for LEO Lite is comparable to copper-based services.

Figure 3.7 Average total cost of a broadband service over 24 months (including CPE/installation)[103]



3.74 Given the different stage in the life-cycles of these broadband technologies, and as more consumers switch away from copper, copper costs will only increase over time. In contrast, LEO costs should be expected to fall as satellite networks scale, compete and mature.

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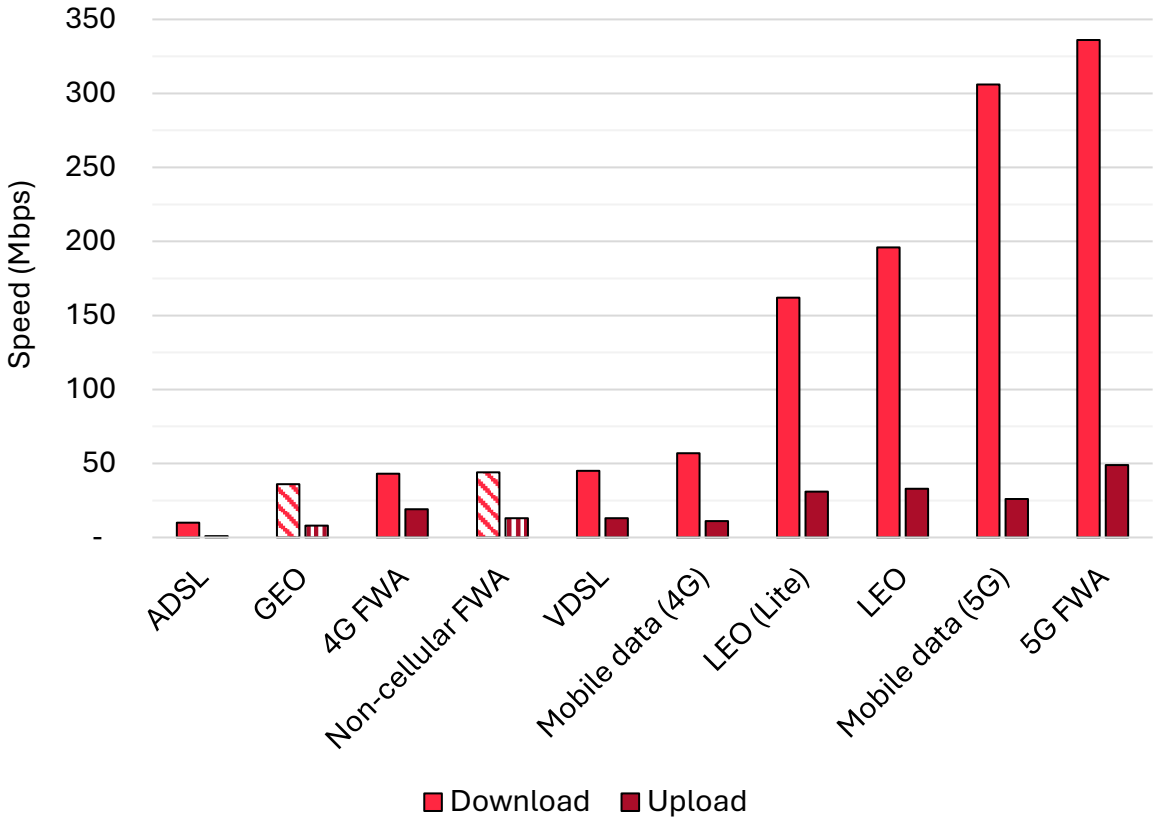
102 See Starlink website accessed and current as of 23 May 2025. Accessories for installation (eg, mounts) are available to purchase separately.

103 LEO Lite includes $599 CPE cost and the average non-cellular FWA installation cost was $238. LEO CPE cost is $0 over a 12-month period in select areas (excludes Auckland).

Performance comparison

3.75 Figures 3.8 and 3.9 compare key performance characteristics between broadband services over various technologies.[104]

Figure 3.8 Average peak time download and upload speeds on different broadband plans and technologies[105]



We have used reported performance (from providers websites) for non-cellular FWA and GEO as MBNZ or Opensignal reporting does not include actual performance. These services are shown as stripes in Figures 3.8 and 3.9 to highlight reported versus actual figures.

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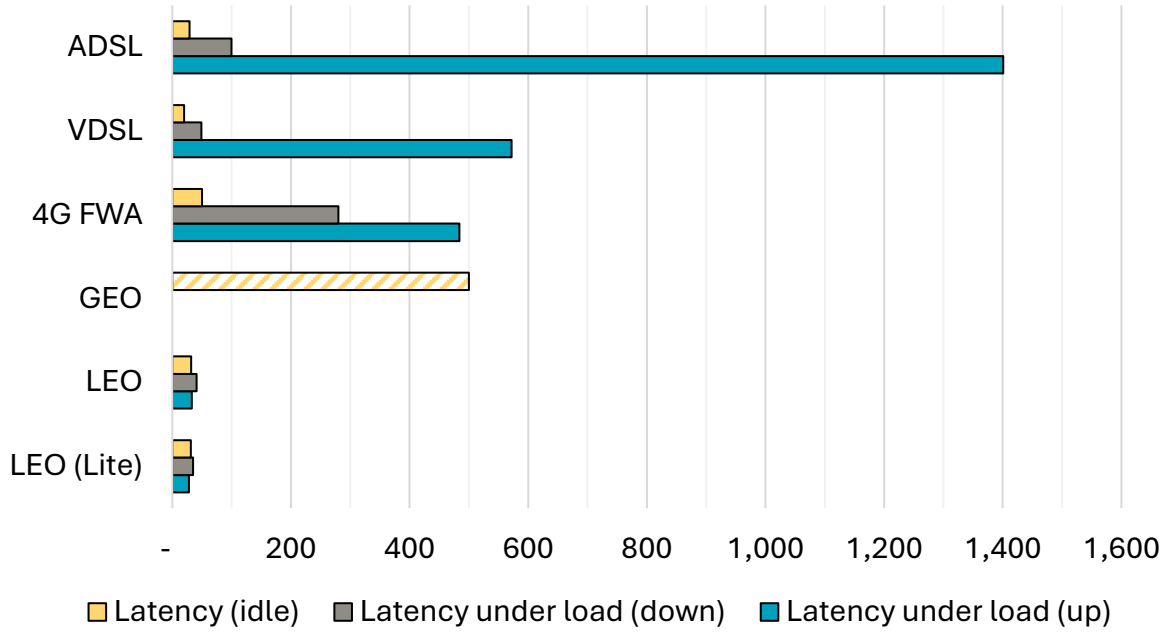
[104] We do not include Fibre or HFC in the figures and tables in the performance comparison section due to their expected low future availability rurally, and to enhance the comparison of the most widely available alternatives. For completeness, we do note their performance in footnotes to each figure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

[105] Figures 3.8 and 3.9 utilise actual performance data from the June 2025 MBNZ report, Opensignal Mobile Network Experience Report (Sep 2024 mobile data) and providers websites (reported performance) where the plan/technology is not included in the MBNZ report (GEO and non-cellular FWA). Actual performance of these two technologies may vary from that reported. Where possible we have used rural peak time data (peak time is between 7pm and 11pm on weekdays but we do not have peak time of year data). HFC provides average peak time speeds of 867Mbps (down) and 102Mbps (up), while the fibre plans differ by speed with Fibre 50 and Fibre 300 offering average peak download speeds as per their name (and upload speed of 108Mbps for Fibre 300—no reported figures for Fibre 50), while Fibre Max offers average peak speeds of 874Mbps (down) and 494Mbps (up).

Figure 3.9 Latency of broadband services over different technologies[106]



3.76 These graphs highlight that alternatives generally compare favourably with copper broadband performance characteristics. Aside from some specific GEO services (for which we only have idle latency data), 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. Latency on 4G FWA is an outlier for latency performance, with idle latency comparable to copper but latency under load (down) much higher than ADSL and VDSL. This could impact some 4G FWA users, such as those who game online.

[106] 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 FWA results are from the March 2025 MBNZ report as the June report does not include updated figures. The GEO latency (peak time) is the average advertised latency on GEO provider websites—there is no advertised latency under load data available. Actual performance will likely differ. 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 idle, load down and load up for each around 13ms, 45ms and 32ms (HFC) and 7ms, 38ms and 21ms (fibre averaged values).

3.77 It is important to note that individual performance will vary for users. Our testing programme reports averages, which means individual users will experience higher and slower speeds at different times. For example, while rural 4G FWA consumers have faster average speeds than ADSL and VDSL when measured 24/7 (56Mbps versus 10Mbps and 46Mbps respectively), 44% of consumers on 4G FWA in rural areas had download speeds of less than 25Mbps during peak times.[107] While this is still faster than ADSL, it is slower than VDSL. As such, in our draft report and in this report, we have used peak time speeds for all technologies to minimise the risk of overstating performance.

3.78 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.[108] Table 3.4 highlights (where we have data) the scale of disconnections and impact of faults for broadband services over different technologies.[109]

Table 3.4 Disconnections and faults by technology[110]

Technology	Disconnections (national daily median)	Rural connections that experienced one or more faults	Average rural fault duration (mins)
ADSL	0.2	36.8%	1698
VDSL	0.1	31.2%	1300
4G FWA	0.2	–	–
LEO	0.7	100%	125

107 The download speed tables for 4G FWA are right-skewed, meaning the majority will receive up to 50Mbps in peak times, while a small number will receive much higher speeds.

108 Commission 2024 AMR, page 157.

109 Commission data. Fault data taken between July 2022 and June 2024. While the disconnections figures are taken from nationwide connection data, we would expect figures to be similar across urban and rural areas.

110 Disconnections taken from the June 2025 MBNZ report (4G FWA data from April 2025). The methodology has changed to only include disconnections that last longer than 30 seconds, hence the large drop in median disconnections from the draft report. Rural connections that experienced one or more faults and average fault duration were taken from Commission data covering July 2022 to June 2024. 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 0.07 disconnections, while the fibre plans averaged 0.06 disconnections (there was no HFC or fibre fault data). We have no 5G FWA data.

3.79 ADSL, VDSL, 4G FWA and LEO all experienced less than one disconnection (lasting more than 30 seconds) on average a day across the country.[111] While only around a third of rural copper connections experienced at least one fault between July 2022 and June 2024, the faults that did occur took a much longer time to resolve due to the nature of the network and aging infrastructure.[112]

3.80 Three known faults affected all New Zealand LEO consumers—an expected risk with satellite technology. Despite this, LEO issues were fixed much faster than copper faults, averaging 125 minutes, compared to 25 hours for rural copper connections. On average, rural copper users wait over a full day for a fix, whereas LEO users wait just over two hours.[113]

3.81 FWA and non-cellular FWA plans regularly contain data caps, while data caps are also present across some GEO and fibre plans.

3.82 Table 3.5 outlines the data caps on broadband plans available over alternative technologies in RCAs. For comparison, copper broadband services (ADSL and VDSL) typically offer unlimited data, with the average copper broadband consumer using 312GB of data per month.[114]

Table 3.5 Data caps on alternative broadband technologies[115]

Technology	Data caps (GB)		Unlimited plan(s) available?
4G FWA * A 'rural' FWA plan with this data cap	40 50 60* 120* 150	170* 200* 300* 1000*	Yes—at least seven plans[116]
5G FWA	No plans with data caps—all unlimited		
Non-cellular FWA	60 90 150 200	300 400 800 1000	Yes—at least 11 plans

111 All disconnections relate to data remaining within New Zealand. 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.

112 Commission 2024 AMR, page 157.

113 Commission data.

114 Chorus "Q4 FY25 Connections Update" (11 July 2025), page 9.

115 While there were eight 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 for Table 3.5 taken from provider websites on 7 May 2025.

116 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 RCAs. The FWA plans providers specify as rural on their websites are more likely to have data caps.

Technology	Data caps (GB)		Unlimited plan(s) available?
GEO	30 50	120 180	Yes—at least five plans
LEO	No plans with data caps—all unlimited		

3.83 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 4G FWA and non-cellular FWA services offer plans with data caps at or above the average copper usage.

3.84 Some GEO service providers 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.[117]

3.85 GEO plans can also vary based on speed, with a proportionate data cap for the speed of the plan. FWA plans are mostly at best-efforts speed, with consumers making purchasing decisions based on the amount of data they believe they need.

Consumer switching behaviour

3.86 Having determined the substitutability of alternatives using objective price and performance measures, it is important to understand how consumers view these alternatives. We now consider switching behaviour and relative levels of service satisfaction.

Switching behaviour

3.87 The reduction in copper broadband connections seems to be a result of a switch in demand to FWA or LEO services, with LEO satellite the fastest growing technology following the entry of Starlink.[118] Nationwide, satellite numbers (both GEO and LEO) increased 60% in the year to 30 June 2024, from ~37,000 to around ~58,000 connections, primarily driven by Starlink. Around 38,500 of these are residential connections in RCAs, with a further ~11,600 residential connections in remote areas of the country where neither regulated fibre nor copper is available.[119]

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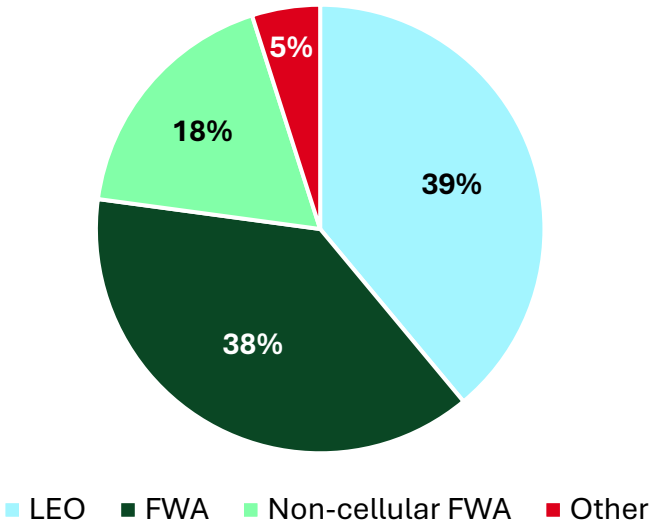
117 Starlink's lite plan operates in a similar way, with users deprioritised compared to non-lite residential users at peak times.

118 Commission 2024 AMR, page 15.

119 ~10.3% of the total satellite connections (~6,000) are in urban areas. As these figures are from different sources and may include business satellite connections, they may not sum. Commission data.

3.88 Chorus data shows that rural copper broadband connections fell from 90,000 to 74,000 in the year to June 2024. Figure 3.10 shows what broadband technologies those rural consumers who moved off of copper switched to.

Figure 3.10 Estimated new broadband technologies of rural consumers who switched off of copper broadband[120]



3.89 The majority of consumers switching off of copper moved to either FWA or LEO. Nearly one in five moved to a WISP non-cellular FWA service, while only a few moved to another technology.[121]

Consumer satisfaction

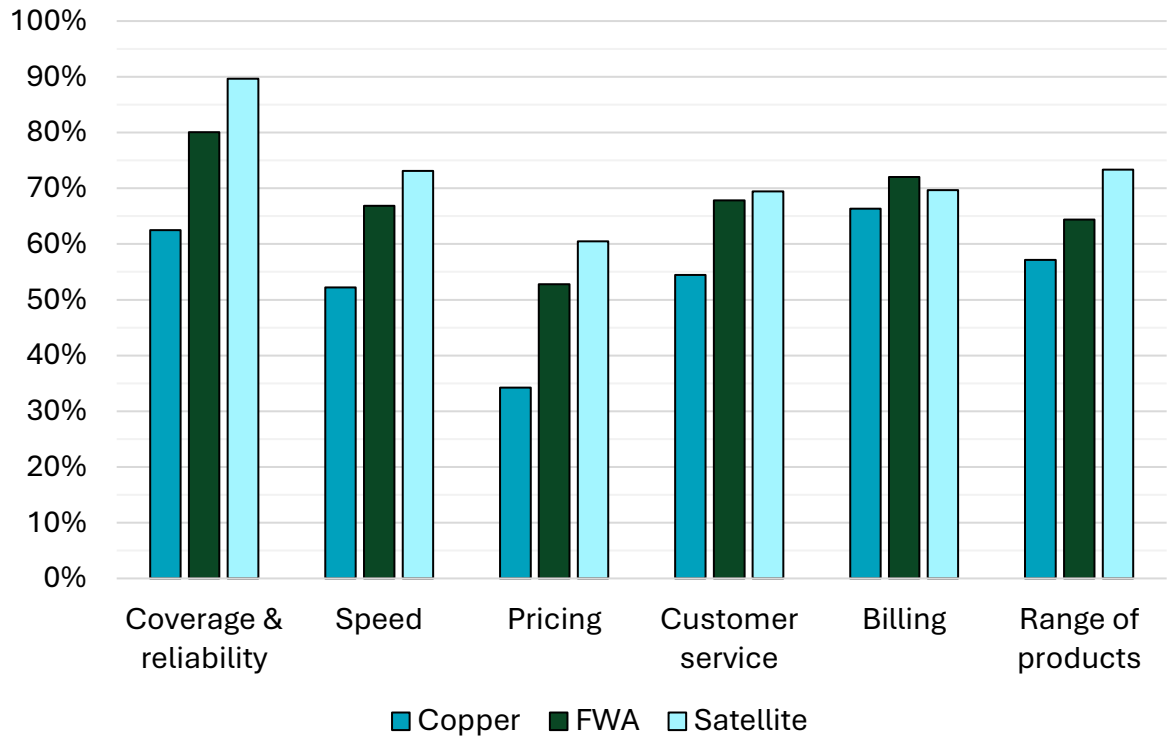
3.90 Our switching analysis is supported by rural consumer satisfaction data. Our Customer Satisfaction Monitoring survey provides some insight into aspects that consumers value in their broadband service and some reasons for switching provider.

3.91 Figure 3.11 outlines the satisfaction levels of rural consumers across three different broadband technologies. FWA outperforms copper, while consumers are generally most satisfied with satellite services.

[120] This figure only looks at broadband connections and excludes any connections where the plan type or technology is unknown. Consumers may have, for example, switched from a voice and broadband FWA plan to a LEO broadband plan and a copper voice only plan. These results do not include an estimate for the number of RCA consumers who got rid of their copper broadband connection and did not purchase an alternative.

[121] Commission data. While this data covers all rural areas, as it only looks at copper consumers who switched, in effect it covers RCAs.

Figure 3.11 Rural consumer satisfaction levels with select broadband technologies[122]



3.92 The switching data supports this higher satisfaction with LEO satellite services.

Competition summary

Market structure

3.93 There are ~223,100 premises in RCAs. As at June 2024, there were 74,000 premises with a copper broadband connection—a decrease of 18% on the previous year.[123] This trend has been seen for several years, with Chorus reporting a steady decline in the number of rural copper connections in its quarterly connections updates. As at 30 June 2025, there were 56,000 copper broadband connections remaining in RCAs—a 24% drop from the year prior.[124]

3.94 The providers of copper alternatives, notably the largest national level RSPs offering FWA, have made commercial decisions to stop, or at least deprioritise, the sale of new copper services in RCAs.

3.95 Nearly 98% of the premises that remain on copper broadband are in coverage of three alternative broadband technologies (two satellite technologies plus one other), while over 60% are in coverage of four alternatives.

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122 Insights HQ "NZ Telecommunications Consumer Satisfaction Tracking – 6 monthly report: January – June 2024".

123 Commission 2024 AMR from Commission data.

124 Copper broadband connections fell 8% in the quarter to June 2025 alone.

3.96 While noting the changeable nature of commercial availability on wireless networks, there was spare 4G and 5G capacity aggregated across FWA networks in mid-2024. Where one FWA provider may have capacity constraints, it is likely that at least one of the other two FWA providers will have commercial availability. We estimate that there are ~1,500 premises that have coverage from just one FWA provider.

3.97 The exponential growth of Starlink's LEO network capacity, and the expected entry of LEO competitor, Project Kuiper, suggests a sufficient level of LEO network capacity should be available in New Zealand into the future.

3.98 We 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. In support of this, we have seen coverage of 5G FWA in RCAs increase from 3% to 11% in a year, highlighting that is it becoming an alternative that more RCA premises may be able to access.

Close substitutes – price

3.99 On the whole, these alternatives compare favourably to broadband services over copper with regard to ongoing monthly cost. While 4G FWA plans marketed as 'rural' are more expensive than copper, our plan data highlights that cheaper standard 4G FWA plans are available and widely used in RCAs. Several alternatives can have higher upfront costs (LEO, GEO and some non-cellular FWA services). However, we have recently seen significant price reductions in LEO upfront and install offers.

3.100 When both plan and equipment costs are combined and spread over two or more years, significant upfront cost for options like LEO Lite is offset by lower monthly prices.

3.101 Given the life-cycles of these broadband technologies, copper prices will only increase over time, whereas LEO prices should be expected to fall as the networks scale, compete and mature.

Close substitutes – performance

3.102 Most copper alternatives perform similarly to, or outperform, ADSL and VDSL broadband services. Peak time download speeds are slightly slower for 4G FWA (43 Mbps) and non-cellular FWA (44 Mbps) compared to VDSL (45 Mbps), but others such as LEO (196 Mbps) 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.

3.103 We do not have data on the actual performance of non-cellular FWA broadband provided by WISPs. However, given switching rates from copper to WISPs, we consider non-cellular FWA represents a viable alternative to copper broadband for the 62% of premises in RCAs with non-cellular FWA coverage.

3.104 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.

Consumer switching and satisfaction

3.105 Consumers of copper broadband services clearly see alternatives as attractive options. In the last year, a net 16,000 rural consumers moved off of copper broadband, mostly to LEO or FWA. This is in line with data showing rural consumers are most satisfied with satellite broadband services, followed by FWA, with those on copper being least satisfied.

Overall

3.106 As at 30 June 2025, there are 56,000 copper broadband connections remaining in RCAs. Connection numbers continue to reduce as RSPs successfully promote non-copper alternatives to consumers. The commercial decisions of RSPs to stop offering, or to deprioritise new copper services in favour of their own networks, makes regulated access to Chorus's copper network less desirable.

3.107 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 high competitive constraint on copper broadband services. We see GEO, 4G FWA and non-cellular FWA providing a moderate competitive constraint. However, 5G FWA, fibre and HFC, despite the substantial performance improvement over copper, are so limited in their geographic coverage that they only offer low competitive constraints.

3.108 The commercial availability, price and performance of alternative networks, coupled with consumer switching trends and satisfaction levels, leads us to conclude that competition exists in the market for retail broadband services in RCAs. This view is not based on any one network or technology, although with the expected entry of Project Kuiper as a competing LEO service, and the continued expansion of FWA, including 5G FWA, we anticipate increased competition from these networks in the future.

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

3.109 Our final step is to determine whether a telecommunications service should be added to Schedule 1 in light of our findings in relation to competition; 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.

3.110 Section 18 outlines that the purpose of Part 2 of the Act (where Schedule 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".

3.111 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:

3.111.1 the efficiencies that will result or will be likely to result;[125] and

3.111.2 the incentives that exist for, and the risks faced by, investors in new telecommunications services.[126]

3.112 In this section, we compare the factual (the future state with existing regulation) to the counterfactual (the future state with the potential alterations to regulation or deregulation) and consider which would best give effect to the section 18 purpose.

3.113 As set out above, we expect that the competition we see in the retail broadband market (in RCAs) to continue into the foreseeable future. We also see a number of competitive trends and developments occurring in the rural retail broadband market (that further reduce copper's role) irrespective of whether regulation is retained or removed. These trends are:

3.113.1 the continuing trend of consumers in rural areas switching to wireless alternatives (and higher satisfaction levels on such alternatives);

3.113.2 the commercial decisions of RSPs to stop selling or prioritising their own wireless services over new copper services (where available); and

3.113.3 the likely entry of new LEO operators into the market, notably Project Kuiper, bringing further competition and choice for rural consumers.

3.114 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.

3.115 Our view is therefore that the appropriate counterfactual is the 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.

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125 Telecommunications Act, s 18(2).

126 Telecommunications Act, s 18(2A).

3.116 Our assessment uses this context as a baseline for both the factual and counterfactual.

Factual assessment (the future state with existing regulation)

3.117 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.[127] 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.

3.118 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 RCAs 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).

3.119 Copper broadband services suffer a higher number of faults and have 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.[128]

[127] 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.

[128] 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.

Counterfactual assessment (the future state without regulation)

3.120 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.[129] 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 that the 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.[130]

3.121 These savings would be much greater if all of the relevant copper services were deregulated. As UBA and UCLF are primarily provided over the same physical infrastructure, deregulation of both services (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.

3.122 If Chorus withdrew the UBA service following deregulation, consumers will be required to switch to an alternative. With the shift away from copper already underway, the current rates of consumer switching to LEO, FWA, and non-cellular broadband services have allowed the owners of these networks to make timely investment choices on extending commercial availability. Provided there is a managed withdrawal of UBA, we expect the level of network competition amongst non-copper providers to meet the vast majority of consumer connectivity needs in RCAs. We note that 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".[131]

3.123 Deregulation, when regulation is no longer needed, also promotes regulatory certainty and thus supports investor confidence.

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129 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.

130 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.

131 Chorus "Submission on Copper Services Investigation approach paper" (22 May 2024), paragraph 8c.

3.124 In the absence of regulation, Chorus would be able to price the wholesale service at a level it views as economic (which it states is higher than the current geographically averaged price due to urban copper withdrawal and overall declining connection numbers).[132] 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, thus incentivising investment in these technologies (eg, expansion of FWA commercial availability) and potentially further entry to the market.

3.125 While not guaranteed, the substantial evidence we have relied on during our competition analysis shows that current copper broadband consumers have 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

3.126 Overall believe 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. While not all copper consumers will be affected in the same way from a withdrawal of copper, 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.

3.127 We therefore recommend that UBA is omitted from Schedule 1 of the Act.

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

Chorus's unbundled copper low frequency (UCLF) service

Recommendation

3.128 Our recommendation is that the UCLF service should be omitted from Schedule 1 of the Act. This is the same recommendation as in our draft report.

3.129 The reasons for this recommendation are summarised below:

3.129.1 Demand for the wholesale service (UCLF) is primarily driven by the demand for retail voice services.

3.129.2 A range of retail voice alternatives are available to consumers in RCAs.

3.129.3 Most of these alternatives are similar to retail copper voice services in price and performance.

3.129.4 The number of copper voice connections in rural areas continues to fall as consumers switch to alternative services.

3.129.5 RSPs are no longer selling or are deprioritising copper connections in favour of alternative technologies, making it harder for new consumers to access a copper service.

3.129.6 Competition exists for retail voice services in RCAs and is likely to continue to grow in the future.

3.129.7 Omitting the service from Schedule 1 would best promote the purpose outlined in section 18 of the Act.

Stakeholder views on our draft UCLF recommendation

3.130 Some submitters agreed with our draft recommendation that UCLF (along with the other relevant copper services) should be deregulated,[133] while others disagreed.[134] The submissions on UBA we summarised in paragraphs 3.30.1–3.30.5 generally applied to our UCLF analysis too. However, some further key submission points of our voice analysis included:

3.130.1 Angela, Bobby, Dave, Rural Connect, Rural Women New Zealand and Spark raised resilience concerns about alternative technologies, in particular regarding power outages and geopolitical influence.[135] While we retain our position from our draft report that power (being necessary for voice service on any technology) is not a defining characteristic of the service, we have provided some information in paragraphs 3.139–3.143 regarding the resilience of different technologies.[136]

3.130.2 Rural Women New Zealand noted the lack of New Zealand-specific data, specifically on the quality of voice services.[137] While we have been unable to source New Zealand voice quality data, we have updated our analysis to include recent testing undertaken in Australia.

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133 Chorus "Submission on Copper Services Investigation Draft Recommendation" (9 April 2025), paragraph 2; One NZ "Submission on Copper Services Investigation draft report" (9 April 2025), paragraph 2; Spark "Submission on Copper services investigation draft recommendation report" (9 April 2025), paragraph 3; TCF "Submission on Copper Services Investigation draft report" (9 April 2025), paragraph 3; and Tuatahi "Submission on Commerce Commission Draft recommendation report for the Copper Services Investigation under section 69AH of the Telecommunications Act" (9 April 2025), paragraph 2.

134 Bobby "Submission on Copper Services Investigation draft report" (9 April 2025), page 1; Dave "Submission on Copper Services Investigation draft report" (7 April 2025), page 1; Neill "Submission to the Commerce Commission: Copper Services Investigation under Section 69AH of the Telecommunications Act" (9 April 2025), page 1; and Terence "Submission on Copper Services Investigation draft report" (9 April 2025), page 1.

135 Angela "Submission on Copper Services Investigation draft report" (8 April 2025), page 1; Bobby "Submission on Copper Services Investigation draft report" (9 April 2025), page 1; Dave "Submission on Copper Services Investigation draft report" (7 April 2025), page 1; Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraphs 4–6, 26–28 and 41–46; and RWNZ "Submission on Copper Services Investigation" (28 March 2025), paragraph 11; and Spark "Submission on Copper services investigation draft recommendation report" (9 April 2025), paragraph 13.

136 At paragraphs 3.139–3.143 of this report.

137 RWNZ "Submission on Copper Services Investigation" (28 March 2025), paragraph 6.

3.130.3 Chorus and Gravity disagreed with our view that voice over a GEO connection would not support a quality voice service and that more consumers than we stated will be using GEO voice via over-the-top (**OTT**) apps.[138] We have included data from recent voice quality testing in Australia. While we agree that there will be some additional GEO broadband consumers using voice over OTT apps as their voice service, we still exclude voice over GEO from our analysis of voice alternatives due to expected poor landline voice quality.

3.131 Attachment A responds to specific points received from submissions and cross-submissions.

Assessment for Chorus's UCLF service

Defining the service (Step 1)

3.132 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)

3.133 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

3.134 There are several wholesale alternatives to UCLF in the wholesale voice market:

3.134.1 Several variants of Baseband (a commercial alternative to UCLF offered by Chorus that uses the same copper infrastructure as UCLF); and

3.134.2 mobile (via mobile virtual network operators).

3.135 These alternatives are not reliant on regulation of UCLF, meaning any competitive constraint they provide on UCLF currently would also be present were UCLF not regulated.[139]

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138 Chorus "Submission on Copper Services Investigation Draft Recommendation" (9 April 2025), paragraph 12; and Gravity "Submission on Copper Services Investigation under section 69AH of the Telecommunications Act – Draft Recommendation Report" (8 April 2025), pages 1–3.

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

3.136 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.

3.137 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

3.138 We consider the retail voice market to comprise services that provide end-users with a voice connection.

Relevance of power source

3.139 We note concerns that copper is viewed as the technology that continues to operate in a power outage at a premises (localised outage), therefore providing enhanced resilience and connectivity in emergencies. This is most often stated in regard to copper landlines. We received several submissions on our draft report discussing the resilience benefits the copper network provides over alternative technologies.[140]

3.140 Our findings do not support the claim that copper offers superior resilience compared to alternative technologies.

3.141 As discussed above,[141] average fault restoration times for rural copper broadband connections are relatively long (around 25 hours) primarily due to the nature of the network and aging infrastructure. Since copper landline voice services rely on the same infrastructure, it is reasonable to expect similar fault resolution times for voice services.

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[140] Angela "Submission on Copper Services Investigation draft report" (8 April 2025), page 1; Bobby "Submission on Copper Services Investigation draft report" (9 April 2025), page 1; Dave "Submission on Copper Services Investigation draft report" (7 April 2025), page 1; Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraphs 26–28 and 41–46; and RWNZ "Submission on Copper Services Investigation" (28 March 2025), paragraph 11; and Spark "Submission on Copper services investigation draft recommendation report" (9 April 2025), paragraph 13.

[141] At paragraphs 3.79–3.80 of this report.

3.142 During Cyclone Gabrielle, 37,500 copper broadband and voice services were disrupted and hundreds of street cabinets were knocked out across regions including Northland, Napier, Auckland, and Coromandel.[142] While some copper landline services (where households have a wired landline phone) may continue to work in short-term power outages, most will only last until the battery in the local street-side cabinet runs out (4–8 hours). In extended outages, all telecommunications technologies, including copper, would be impacted.

3.143 Whether it is provided through mains power, a battery, or a local exchange, all voice technologies require a power source. Our market analysis shows that power being necessary for any voice service on any technology is not a defining characteristic of the service.[143]

Retail voice technologies

3.144 Several retail voice alternatives to retail copper voice services (that can use UCLF as an input) are available in RCAs, including:[144]

3.144.1 mobile voice;

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

3.144.3 Wi-Fi calling; and

3.144.4 OTT apps.

3.145 While mobile is likely the most widely used voice service in RCAs,[145] alternatives like VoIP, Wi-Fi calling and OTT apps are available over an internet connection, including over technologies described in our UBA analysis, such as:

3.145.1 FWA;

3.145.2 non-cellular FWA;

3.145.3 HFC;

3.145.4 satellite (GEO and LEO); and

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142 TCF "Q&A – Technologies in extreme weather events" (Feb 2023).

143 Consumers are now advised that if power for voice is important in a power outage then they should consider a battery back-up device in the home.

144 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); and Spark "Spark sends first satellite text message and announces plans for a network of satellite-connected cell towers" (29 November 2023).

145 We discuss this at paragraph 3.156 and Figure 3.13.

3.145.5 fibre.

3.146 Our view is that the alternatives available over this range of technologies are all included in the retail voice market described above and could provide indirect competitive constraint on UCLF.

3.147 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 3 applies were UCLF regulated or not.

Analysis of competition (Step 3)

3.148 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.

3.149 We consider that assessing competition in this market requires analysis of:

3.149.1 the market structure;

3.149.2 whether alternatives represent close substitutes; and

3.149.3 actual switching behaviour.

Approaching competition from wireless networks

3.150 Our analysis of voice competition leans heavily on the key concept of 'coverage'.

3.150.1 Coverage means that a network is physically present in a certain area—ie, that some level of network signal can be detected at that location. Wireless coverage can be impacted by a multitude of factors, including distance from the wireless site, vegetation, walls, and hills. Coverage tends to be estimated using predictive network models that cannot always reflect these factors.

3.150.2 Mobile voice services require less signal strength and network capacity than broadband, which means areas with marginal coverage that may not support broadband are likely to still deliver reliable voice communication.

3.151 Voice services delivered over broadband using solutions like VoIP, Wi-Fi calling, or OTT apps do not require high levels of network capacity to function. Therefore, when comparing wireless alternatives to copper voice services, we do not need to evaluate commercial availability beyond what we already considered for UBA.

Market structure

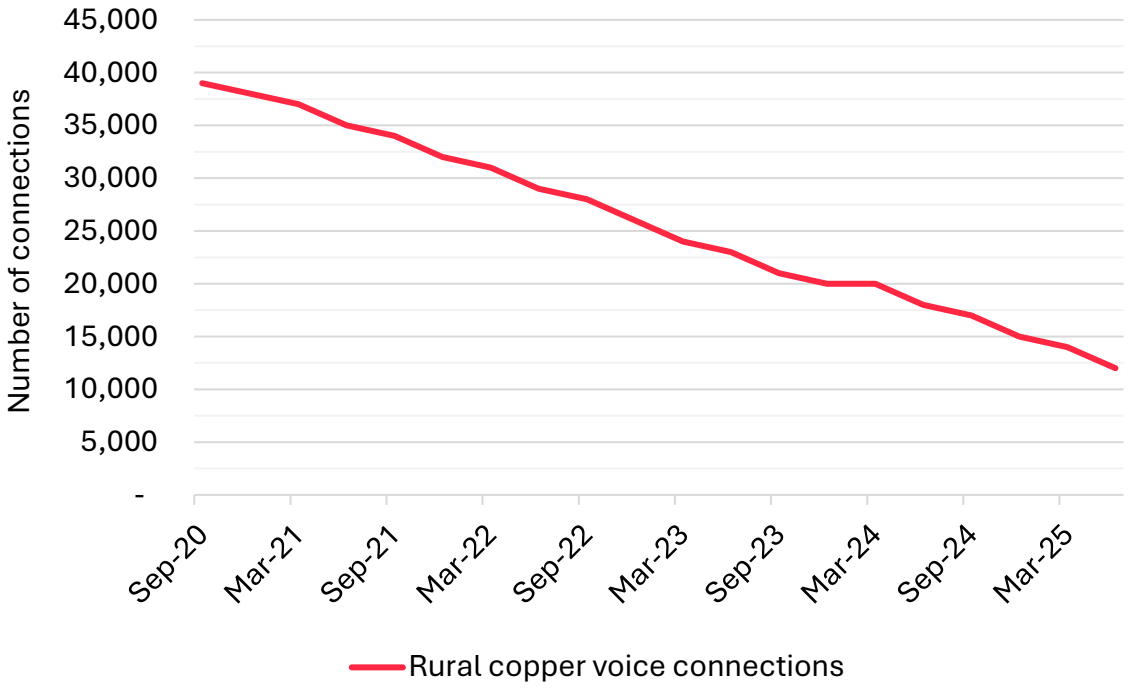
Copper voice in RCA areas

3.152 Chorus owns the copper network across the country, including in RCAs, where there are ~223,100 premises (ie, with access to the copper network and UCLF more specifically). However, the number of premises with a copper voice connection has been steadily reducing for a number of years.

3.153 For the purposes of our competition assessment, we treat all copper voice connections (whether regulated UCLF or commercial Baseband variants) as UCLF, as this is the service that would endure were Chorus to withdraw its commercial offering. We acknowledge that this was not accurately recognised in our draft report.

3.154 At the end of June 2024, Chorus had 18,000 UCLF connections in rural areas (outside of SFAs), down 18% from a year earlier (22,000 connections).[146] Figure 3.12 shows this has been a trend for a number of years. As at 30 June 2025, there were 12,000 copper voice only connections remaining in RCAs.[147]

Figure 3.12 Rural copper voice only connections



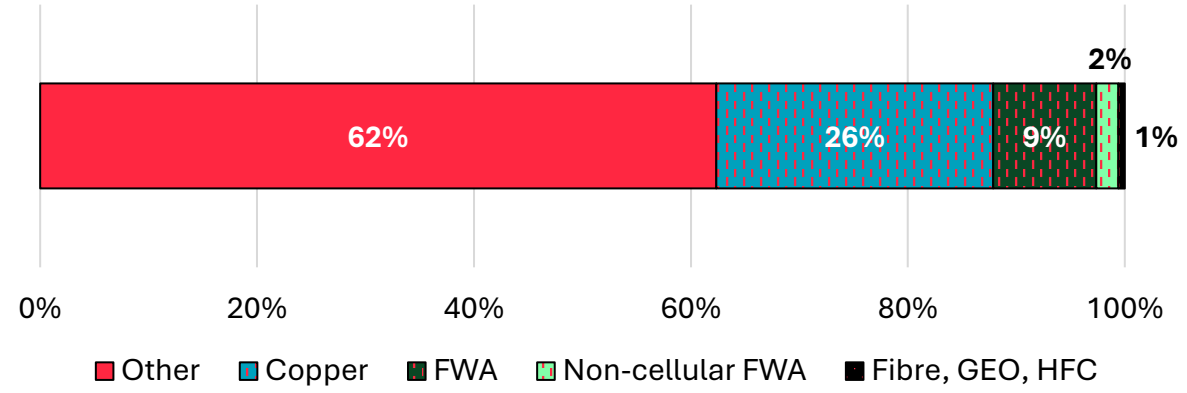
146 Commission data and Chorus Quarterly connections updates.

147 Data to June 2025. As SFAs are extended every year, some of the decline will be voice connections that become included in SFAs and are thus removed from this reporting. However, we see a similar decline in copper voice only 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.

3.155 The drop in copper voice only connections across New Zealand is likely due to several factors, including the availability of alternatives, RSP marketing choices, and commercial decisions not to provide 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, between June 2024 and June 2025, rural copper voice only connections declined by 33%, a steeper drop than the 24% fall in rural copper broadband connections over the same period.[148]

3.156 As at June 2024, voice connections in RCAs were provided over mobile and over landline via copper, FWA or non-cellular FWA. Most connections shown as 'other' in Figure 3.13 are non-landline alternatives. We estimate these to be mobile voice services. This could include both mobile calling and calls made through internet-based OTT apps on mobile devices. There was also a small number of fibre, GEO and HFC voice connections. It is likely that the premises with landlines (38%) also use a mobile voice service, hence our shading of those areas to highlight the likely overlap in voice services.

Figure 3.13 Share of voice connections by technology in RCAs[149]



Coverage of copper alternatives

3.157 For the ~223,100 premises in RCAs:[150]

148 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.

149 Commission data. We made the assumption that where premises did not have a fixed landline, they used another type of voice service such as mobile or OTT apps. The result of this is the 62% 'other' in Figure 3.13. There may be additional landline connections such as VoIP over LEO which we do not have data on.

150 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.

3.157.1 98% are in coverage of a 4G or 5G mobile network;[151]

3.157.2 96% are within coverage of at least one FWA network, with 11% also in coverage area of a 5G FWA network;[152]

3.157.3 62% are within coverage of at least one non-cellular FWA network;

3.157.4 0.4% are in coverage of One NZ's HFC network;

3.157.5 0.2% are in coverage of a fibre network;[153] and

3.157.6 all premises with sufficient line of sight to the sky can access a LEO satellite service.[154]

3.158 We have excluded voice over GEO satellite from our coverage and pricing analysis as we do not view it as a close substitute due to its expected poorer performance. Our data indicates that the high latency of voice services over GEO would not support a quality voice service. This position is supported by recent testing done in Australia as outlined in paragraphs 3.172–3.174.

3.159 The coverage of different alternatives is (conceptually) highlighted in Figure 3.14.

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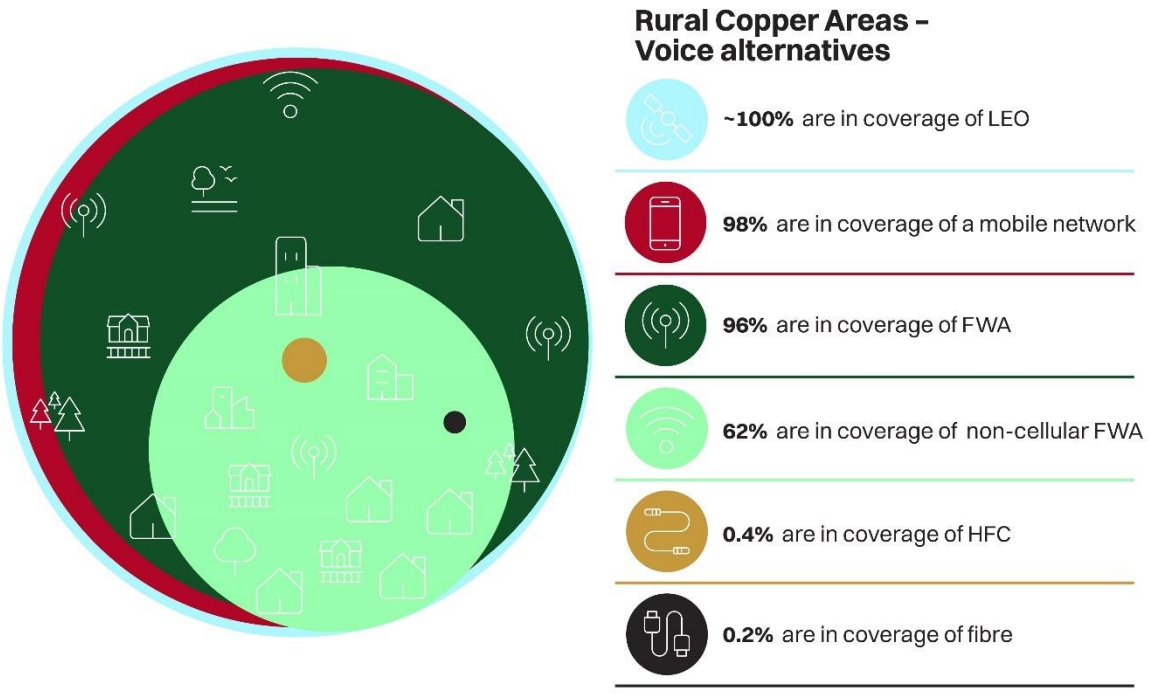
151 We only considered 4G and 5G mobile networks as 3G mobile networks are to be shut down in 2025. We also only included premises where more than 50% of the premises geographic area was in cell coverage. We note that actual performance will likely vary for consumers, particularly in rural areas, so commercial availability (coverage that allows consistent quality voice calls) is expected to be lower than this. We note that 2degree's partnership with AST SpaceMobile to provide data services via satellite to cells (planned to start selling services in 2026) will extend coverage (for data services that can support OTT app voice) for supported handsets to nearly 100%. See 2degrees "2degrees announces partnership with AST SpaceMobile and plans for NZ launch" (11 March 2025).

152 Only includes land parcels with over 50% coverage.

153 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.

154 Throughout this report we note that "~100%" of premises in RCAs have access to LEO and GEO. Even though LEO and GEO providers advertise their services being available across all of New Zealand (see Starlink, Gravity and Brdy websites), 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 commercial availability.

Figure 3.14 Availability of voice alternatives in RCAs



3.160 Taking a consumer perspective, Table 3.6 outlines the percentage of premises in RCAs which are in coverage of different retail voice alternatives.

Table 3.6 Coverage of alternative voice technologies[155]

Number of voice alternatives available (coverage)	% of premises in RCAs who are in coverage
1	~100%
2	99.3%
3	97.2%
4	60.0%
5	0.5%
6	0%

3.161 This highlights that ~97% of premises in RCAs are in coverage of three alternative voice technologies while 60% are in coverage of four.

[155] This table takes a consumer perspective by counting how many alternatives are available at each premises in RCAs. For example, the 99.3% of premises that are in coverage of two alternatives (LEO plus one other) likely includes all 98% of premises in mobile coverage plus some premises not in coverage of the mobile network that are in coverage of another alternative (eg, a WISP non-cellular FWA service). Commission data.

3.162 Our data indicates that a small number of premises in RCAs (~0.7%) are only in coverage of a voice alternative over a LEO network. Of this small number, we estimate:[156]

3.162.1 ~83% have at least one existing voice or broadband connection (~17% are currently unconnected);[157]

3.162.2 ~47% have a dedicated copper voice only line;

3.162.3 ~23% have a copper voice service and a separate broadband connection (excluding copper) which is capable of providing a voice service via VoIP or Wi-Fi calling; and

3.162.4 ~24% only have a copper connection (copper voice only or a copper voice and broadband plan).

Close substitutes

3.163 Having determined the structural aspects of competing networks in the copper voice market, we now 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.[158]

Price comparison

3.164 Table 3.7 summarises landline voice service pricing over different technologies, split by voice only or bundled with broadband.[159] We provide the retail cost of a copper voice only service for comparison.

[156] These figures include premises which might have two properties on a land parcel and thus multiple voice connections. As such, figures may not add to 100%.

[157] Note, our data on unconnected premises is limited and of varying quality.

[158] 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.

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

Table 3.7 Summary of retail voice plans by technology[160]

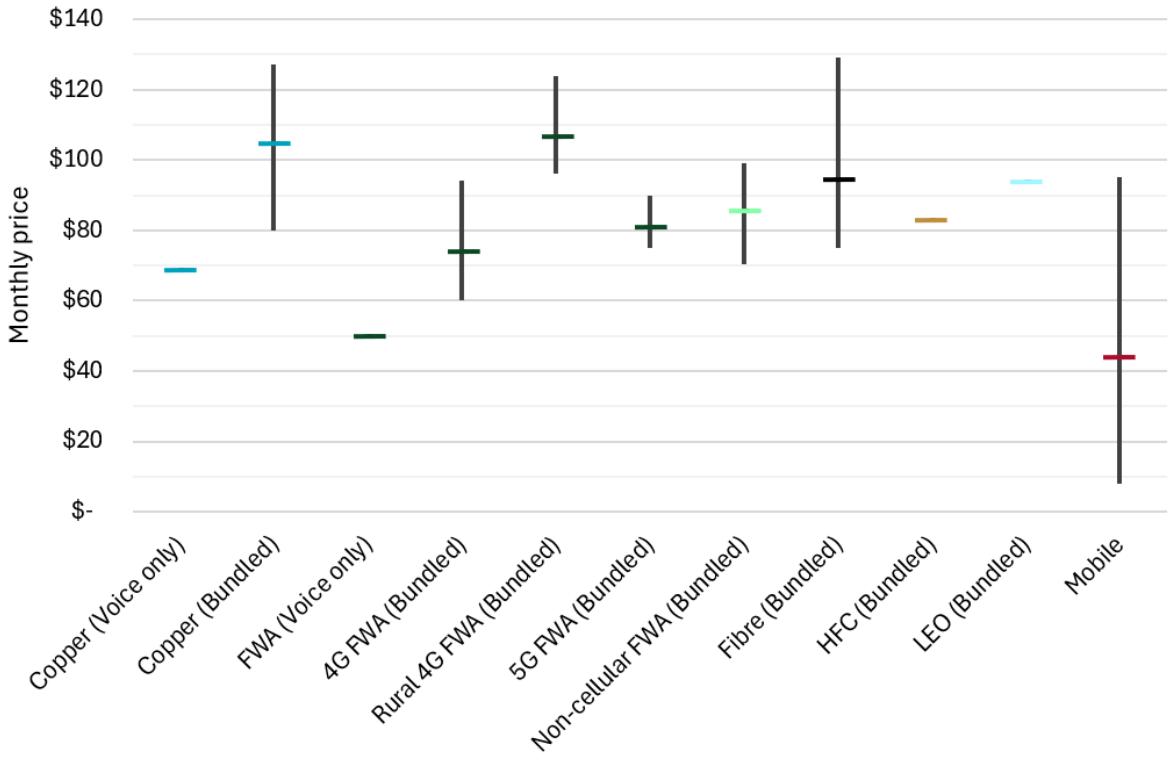
Voice technology	Monthly price	NZ landlines c/min	NZ mobiles c/min	Notes
Copper (Voice only)	$68.70	$0.24	$0.39	Spark offers this, but only where a wireless or fibre landline is not available
Copper (Bundled)	$80 – $127	$0 – $0.26	$0.16 – $0.39	–
FWA (Voice only)	$50	$0.24	$0.39	Includes 50GB data but advertised as a voice only service
4G FWA (Bundled)	$60 – $94	$0 – $0.26	$0.20 – $0.48	–
4G FWA 'rural' (Bundled)	$96 – $124	$0 – $0.24	$0.20 – $0.39	Used plans with rural in name or indicated for rural consumers
5G FWA (Bundled)	$75 – $90	$0.06 – $0.26	$0.20 – $0.39	–
Non-cellular FWA (Bundled)	$70.50* – $99	$0 – $0.10	$0 – $0.39	–
Fibre (Bundled)	$75 – $129	$0 – $0.26	$0 – $0.48	Very limited RCA availability
HFC (Bundled)	$83	$0.26	$0.39	Very limited RCA availability
LEO (Bundled)	$93.89*	$0.06	$0.20	–
Mobile	$8 – $95	Free—minute caps on some plans	Free—minute caps on some plans	Mobile plans primarily offer a minute cap rather than c/min rates

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

3.165 We have visualised the monthly prices in Figure 3.15.

[160] Pricing data taken from the websites of 2degrees, Amuri, Farmside, Gravity, Inspire Net, Kiwi Voip, Kogan, Lightwire, Mercury, Nova, One NZ, Rocket Mobile, Slingshot, Spark and Starlink on 8 May 2025. There were no rural voice only plans available over non-cellular FWA, fibre or LEO so these options have not been included.

Figure 3.15 Price range and average price of voice services



3.166 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 is only one other voice only plan available (a FWA plan that comes with some data), the bundled options offer similar priced access to a voice service, while having some broadband data included.

3.167 Some landline plans on alternative technologies offer free calling (or a set number of free minutes) to national landlines or mobiles, making the complete cost more attractive relative to copper landlines.

3.168 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 include calling to Australian landlines and mobiles).

3.169 Table 3.7 focuses on landline (VoIP over alternative technologies) and mobile voice services. As outlined above, Wi-Fi calling and OTT apps 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 apps.

3.170 Given the life-cycles of these voice technologies, copper prices will only increase over time, whereas 5G and LEO prices should be expected to fall as the networks scale, compete and mature.

Performance comparison

3.171 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.[161]

3.172 Since our draft report was published, the Australian Government released data from a series of trials of fixed voice services.[162] The trials are focused on measuring the quality of fixed voice services over LEO, but includes FWA and GEO tests as comparisons.[163] The trials used some of the same metrics we have used above, but also included Mean Opinion Score (**MOS**) which measures the quality of a voice call on a scale of 0 to 5 (higher is preferable).

3.173 Starlink and FWA score similarly at 4.24 and 4.26 respectively, while GEO scored 3.17. The International Telecommunication Union Standardisation sector categories MOS scores as:[164]

3.173.1 above 4.34—users very satisfied;

3.173.2 between 4.03 and 4.33—users satisfied;

3.173.3 between 3.6 and 4.02—some users dissatisfied;

3.173.4 between 3.1 and 3.59—many users dissatisfied;

3.173.5 below 3.09—nearly all users dissatisfied.

3.174 As such, with GEO scoring so low, we reiterate our view that voice over GEO satellite likely offers a poor-quality voice service and still do not consider it a close substitute to copper voice. We appreciate that this is not New Zealand-specific data, but it is the most current and relevant data available.

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161 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% 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.

162 See the trial of voice services results dashboard (accessed 29 July 2025).

163 See trials of voice services webpage.

164 See TTU "The E-model, a computational model for use in transmission planning" (3 December 1998), page 12.

3.175 The quality of VoIP, Wi-Fi calling and OTT apps 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.

3.176 Some of the characteristics which affect the quality of voice over a broadband connection include:

3.176.1 **Broadband speed**: 100kbps download and 100kbps upload speed is often seen by industry as the minimum requirement for a VoIP call.[165, 166]

3.176.2 **Latency**: a high level of latency can lead to significant pauses and delays between statements on a call. Cisco considers that VoIP calls with less than 150ms of latency (one way) to be usable.[167] Top quality VoIP calls likely require a lower latency than this.

3.176.3 **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 Cisco stating levels under 30ms are expected to provide sufficient quality.[168]

3.176.4 **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.[169]

3.177 We are also not aware of any data outlining acceptable levels of such indicators for a 'quality' voice experience over a broadband connection in New Zealand. However, our analysis of broadband alternatives in Figures 3.8 and 3.9 highlights the differences between technologies regarding some of these characteristics.

3.178 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.

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165 Cisco "Implementing Quality of Service Over Cisco MPLS VPNs" (26 May 2006).

166 For example, Zoom suggests minimum bandwidth required for an audio-only call as being between 60–100kbps for both upload and download speed. Zoom "Zoom system requirements: Windows, macOS, Linux" (16 April 2025).

167 Cisco "Implementing Quality of Service Over Cisco MPLS VPNs" (26 May 2006).

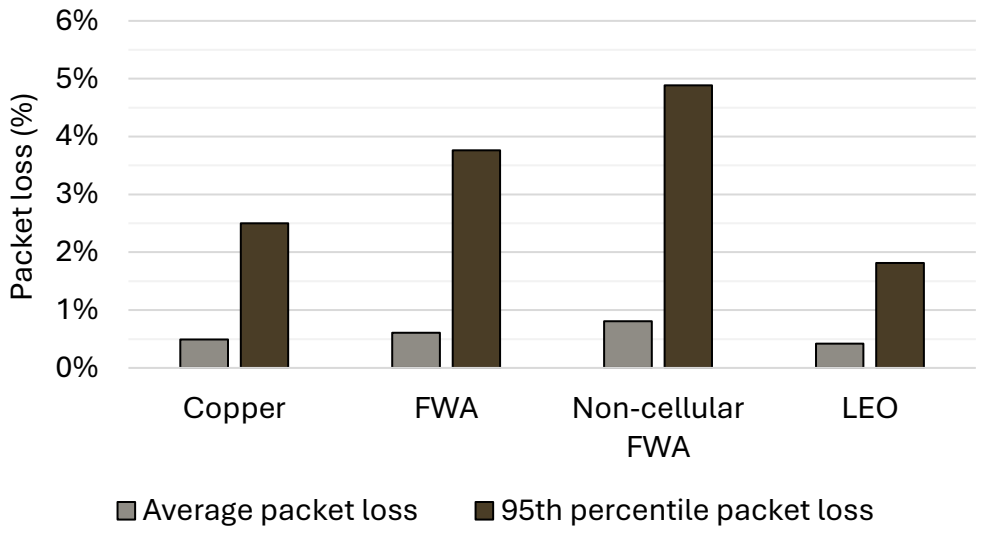
168 Cisco "Implementing Quality of Service Over Cisco MPLS VPNs" (26 May 2006).

169 Cisco "Implementing Quality of Service Over Cisco MPLS VPNs" (26 May 2006).

3.179 With the exception of 4G FWA and GEO,[170] all of the technologies likely 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 delays when each person speaks expected. As mentioned, our view is that a GEO broadband connection would not support a quality voice service.

3.180 Figures 3.16 and 3.17 highlight the differences in average jitter and packet loss across several broadband technologies. Note that these have not been updated from our draft report as they are unlikely to change and the data is difficult to obtain.

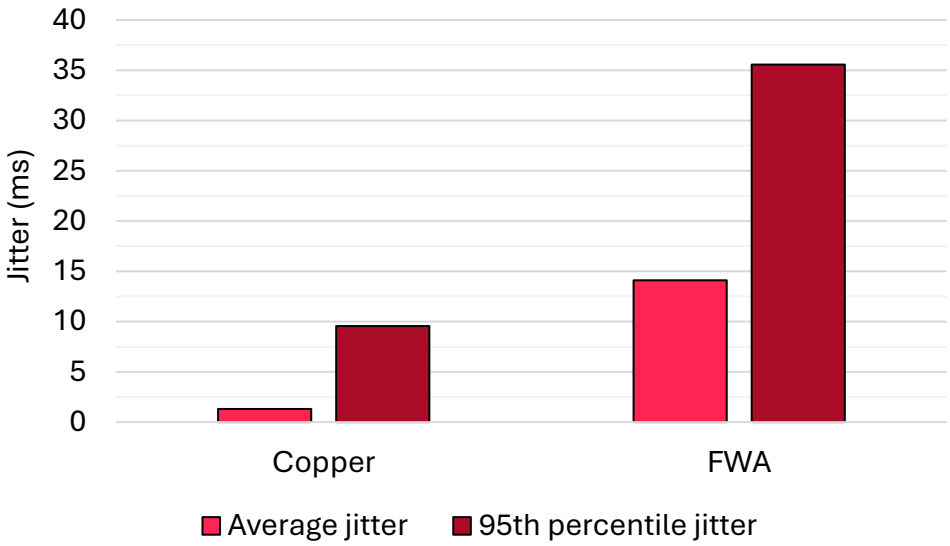
Figure 3.16 Average packet loss across select broadband technologies[171]



[170] With a peak time latency under load (down) of 280ms, 4G FWA is above the one way level of 150ms seen to be the maximum latency for a quality VoIP call. However, this test is done as a speed test is being run, so capacity will be limited. As a result, 4G FWA would likely suffer from poorer quality VoIP calls at peak times when there is limited capacity on the connection, such as in the evenings, weekends or on public holidays. If capacity is not limited (ie, no other users on the line), latency will likely be sufficient for a quality VoIP call.

[171] 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). Data from May – November 2024.

Figure 3.17 Average jitter across select broadband technologies[172]



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

3.181.1 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

3.181.2 the 95th percentile 24/7 jitter figure for FWA (4G) was over 30ms (35.58ms).[173]

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

3.183 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 or on specific technologies.[174]

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172 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 highlighting 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.

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

174 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.

3.184 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 apps. While mobile voice does not require high signal strength or network capacity to operate effectively, it still relies on being within some network coverage and is subject to limitations such as device battery life.

3.185 Our view is that mobile voice and voice over fibre, LEO and non-cellular FWA likely represent close substitutes for retail copper voice services. Due to its high latency, we do not see voice over GEO as a close substitute because it would not likely support a quality voice service.[175]

Consumer switching behaviour

3.186 Having determined the substitutability of alternatives using objective price and performance measures, it is important to understand how consumers view these alternatives. We now consider switching behaviour and relative levels of service satisfaction.

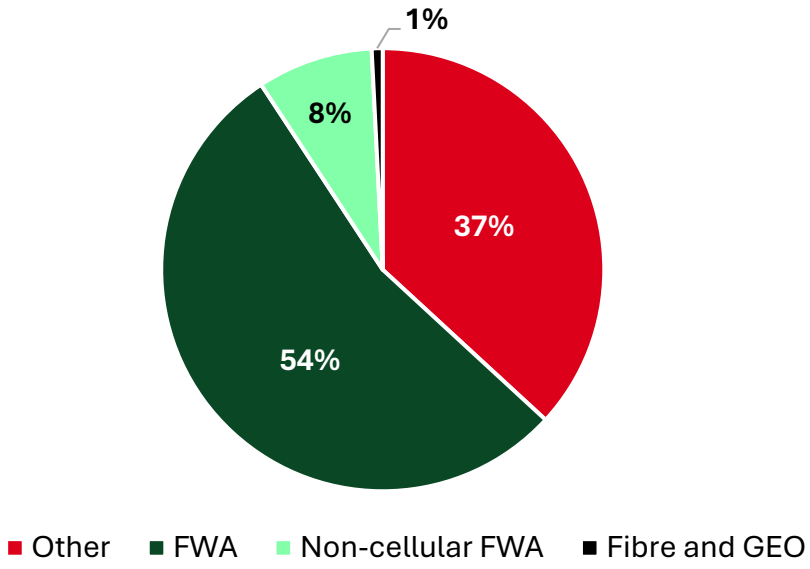
Switching behaviour

3.187 Rural voice only connections fell by ~4,000 from June 2023 (~22,000) to June 2024 (~18,000).[176] Figure 3.18 presents what voice technology we estimate those consumers in RCAs who had a copper voice connection at 30 June 2023 were on a year later.

[175] We acknowledge that a small number of premises in RCAs currently use a dedicated GEO voice service. We do not expect those dedicated voice connections provide a voice service near the quality of one over the copper network. We note that it is likely some GEO broadband consumers will be using OTT app voice services over their GEO broadband connection which are not included in our data.

[176] Commission data.

Figure 3.18 Estimated new voice technologies of rural consumers who switched off of copper voice[177]



3.188 We estimate that over a third of premises who left a copper voice service did not have a fixed landline service at June 2024. Our assumption is that these premises moved to a non-landline alternative, which we estimate to be mobile voice services. A likely reason for this shift is that many consumers either already had a mobile phone or transitioned to mobile-based communication. This could include both mobile calling and calls made through internet-based OTT apps on mobile devices.[178]

3.189 Average monthly mobile data usage per subscriber has been trending up year on year,[179] which may indicate an increasing use of OTT apps to make voice calls in place of using a landline. We do not have detailed data to confirm that is the case.[180]

3.190 As at 30 June 2024, there were 6.8m mobile connections across the country, with 10.6b mobile voice call minutes and 5.4b text messages sent during the year. The number of mobile voice call minutes has grown by 100% over the last decade, but has declined for the second year in a row in 2023/24.[181] The number of text messages has dropped 55% in the last decade.

177 Commission data.
178 Commission data.
179 Commission 2024 AMR, page 13.
180 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.
181 Commission 2024 AMR, page 13.

3.191 We do not have data on consumer usage of Wi-Fi calling or OTT apps, but both represent a means of making voice calls without the need for a landline voice connection or mobile coverage.

Consumer satisfaction

3.192 As discussed in the UBA section, our Customer Satisfaction Monitoring survey provides some insight into aspects that consumers value in their broadband service. Unfortunately, we do not have satisfaction measures for voice services.

Competition summary

Market structure

3.193 There are ~223,100 premises in copper coverage. At the end of March 2025, Chorus had 12,000 UCLF connections in RCAs (ie, ~209,100 premises are using alternatives to a copper voice only service).

3.194 There are a number of alternatives available. The primary one is mobile voice, with over 98% of premises in RCAs having mobile coverage. The other alternatives (VoIP, Wi-Fi calling and OTT apps) all require a broadband connection, with this available via a range of technologies as described in our UBA analysis. Over 97% of premises in RCAs are in coverage of three alternatives (including alternative broadband technologies capable of VoIP, Wi-Fi calling and OTT apps). We expect the coverage 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 across the country.

Close substitutes – price

3.195 The alternatives mostly compare favourably to copper voice services with regard to ongoing monthly cost. Mobile phone plans can be purchased for as little as $8 a month, with a 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 (eg, LEO and some non-cellular FWA plans) due to the technology used and installation required (although some of these units are able to be purchased on sale or refurbished at a cheaper price).

3.196 Given the life-cycles of voice technologies, copper prices will only increase over time, whereas 5G and LEO prices should be expected to fall as the networks scale, compete and mature.

Close substitutes – performance

3.197 Most of the alternatives are comparable to copper voice services performance wise. As there are many variables that affect a voice service, particularly 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.[182]

Consumer switching and satisfaction

3.198 Rurally, copper voice only connections are following the decline in copper use seen nationwide, with a 33% fall in connections in the year to 30 June 2025. We have seen ~1,400 fewer rural copper voice only connections each quarter for the last five years (an overall decline of 70%),[183] while average mobile data usage and the number of mobile voice call minutes (nationwide) have grown consistently over the last decade.

Overall

3.199 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.

3.200 Overall, our view is that competition exists in the market for retail voice services in RCAs. 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.

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182 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 variability due to congestion issues because of the size and scale of WISPS.

183 Between June 2020 and June 2025.

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

3.201 Our final step is to determine whether a telecommunications service should be added to Schedule 1 in light of our findings in relation to competition; 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.[184]

3.202 Section 18 outlines that the purpose of Part 2 of the Act (where Schedule 1 sits and within which UCLF 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".

3.203 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:

3.203.1 the efficiencies that will result or will be likely to result;[185] and

3.203.2 the incentives that exist for, and the risks faced by, investors in new telecommunications services.[186]

3.204 In this section, we compare the factual (the future state with existing regulation) to the counterfactual (the future state with the potential alterations to regulation or deregulation) and consider which would best give effect to the section 18 purpose.

3.205 As set out above, we expect that the competition we see in the retail voice market (in RCAs) 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.

3.206 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.

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184 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".

185 Telecommunications Act, s 18(2).

186 Telecommunications Act, s 18(2A).

3.207 It is important to note that we see a number of competitive trends and 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 trends are:

3.207.1 the continuing trend of consumers in rural areas switching to alternatives;

3.207.2 the commercial decisions of RSPs to stop selling copper services or to prioritise their own wireless services over new copper services (where available); and

3.207.3 the likely entry of new LEO operators into the market, notably Project Kuiper, bringing further competition and choice for rural consumers.

3.208 Our assessment uses this context as a baseline for both the factual and counterfactual.

Factual assessment (the future state with existing regulation)

3.209 An ongoing regulatory obligation would require Chorus to continue to invest and maintain the copper infrastructure required to provide UCLF for a limited and reducing number of consumers who are geographically dispersed.[187] 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 would likely become increasingly uneconomic for Chorus and could impose inefficient investment costs on Chorus.

3.210 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.

[187] 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.

3.211 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.[188]

Counterfactual assessment (the future state without regulation)

3.212 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.[189] 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 would be retired and UCLF would no longer be offered. The savings made from this reduction in investment in the copper network represents efficiencies for Chorus.[190]

3.213 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 services (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.

3.214 If Chorus withdrew UCLF following deregulation, consumers would be required to switch to an alternative. With the shift away from copper already underway, the current rates of consumer switching to other networks have allowed the owners of these networks to make timely investment choices on extending coverage. Provided there is a managed withdrawal of UCLF, we expect the level of network competition amongst non-copper providers to meet the vast majority of consumer connectivity needs in RCAs. We note that 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".[191]

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188 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.

189 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.

190 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.

191 Chorus "Submission on Copper Services Investigation approach paper" (22 May 2024), paragraph 8c.

3.215 Deregulation, when regulation is no longer needed, also promotes regulatory certainty and thus supports investor confidence.

3.216 In the absence of regulation, Chorus would be able to price the wholesale service at a level it views as economic (which it states is higher than the current geographically averaged price due to urban copper withdrawal and overall declining connection numbers).[192] 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 to move off copper to an alternative, incentivising investment in these technologies and possibly further entry to the market.

3.217 While not guaranteed, the substantial evidence we have relied on during our competition analysis shows that copper voice consumers have alternatives available to them that 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

3.218 Overall, we believe that regulation of UCLF is no longer necessary to best give effect to the section 18 purpose and to 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.

3.219 We therefore recommend that UCLF is omitted from Schedule 1 of the Act.

UCLL Co-location, UCLL Backhaul and UBA Backhaul

3.220 As outlined previously,[193] UCLL Co-location, UCLL Backhaul and UBA Backhaul are ancillary services that support the provision of UBA and UCLF. Legislation limits their use so that they cannot be used for any other purpose.[194]

3.221 Accordingly, we have focused the Investigation on UBA and UCLF. We indicated that we would only undertake analysis of the ancillary services where appropriate based on the recommendations for UBA and UCLF.

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

193 Paragraphs 3.16–3.17.

194 Telecommunications Act, Schedule 1.

3.222 As we are recommending UBA and UCLF are omitted from Schedule 1, we have not undertaken analysis of UCLL Co-location, UCLL Backhaul and UBA Backhaul. There is no long-term benefit to end-users of retaining regulation for these three ancillary services if UBA and UCLF are deregulated.

Recommendations

3.223 We recommend that the UCLL Co-location, UCLL Backhaul and UBA Backhaul services are omitted from Schedule 1 of the Act. These recommendations have not changed from our draft report.

Stakeholder views on our draft UCLL Co-location, UCLL Backhaul and UBA Backhaul recommendations

3.224 We did not receive any submissions about our draft recommendations for UCLL Co-location, UCLL Backhaul and UBA Backhaul.

3.225 As a result, we have not changed our approach from the draft report.

Attachment A Response to submissions

A1 We received 13 submissions and two cross-submissions from stakeholders on our draft report. The tables below contain our responses to key submission points:

A1.1 Table A1 contains submissions on the overall assessment framework.

A1.2 Table A2 contains submissions on competition analysis.

A1.3 Table A3 contains submissions on copper resilience.

A2 We have only included submissions that relate to the draft recommendation and where it is useful to clarify what we have done in response to this submission and why. For example, we do not include submissions which cover out of scope topics (eg, fibre regulation) or which simply stated they support or agree with elements of our framework or recommendation.

A3 We note that there was general consensus from submitters that a managed withdrawal process to protect rural consumers would be important if copper were to be deregulated and removed. Submissions touched on a customer-centric education campaign, learning from existing urban withdrawal issues, and the particular protection of more vulnerable consumers among other points.

A4 We do not respond to submitters' comments on a managed withdrawal process because such a process is beyond the scope of this Investigation.

Table A1 Submissions on the assessment framework

Submitter(s)	Submission summary	Response in cross-submission	Our response
Chorus[195]	Continue to disagree that the STDs prevent retirement of the copper network. Applying this view would change the factual position where Chorus would incrementally reduce network coverage in line with STD mechanisms.		We do not agree that Determinations under Part 2 (ie, STDs) cannot prevent the exit of assets. However, our scope is limited to that set out in section 69AH of the Act.
Spark[196]	The Commission could amend the existing STD through a section 30R review to include necessary end-user protections, rather than conclude that the copper services should be omitted from Schedule 1 at this stage. This is consistent with Part 2 of the Act.	**Chorus**:[197] Disagree with Spark. Chorus's view is that Part 2 does not permit powers to be used that way.	We do not agree that this is an option available to us, unless we concluded (which we have not) that the section 18 purpose is best met by the retention of regulation (and potential subsequent amendment to the STD, which would be subject to a separate process). This is because the Commission is required to complete this Investigation by 31 December 2025 and in doing so must apply the correct legal framework. Further, under section 69AG(2) and (5), we cannot carry out a section 30R review of the STDs until our Investigation is complete.

195 Chorus "Submission on Copper Services Investigation Draft Recommendation" (9 April 2025), paragraphs 10 and 11.
196 Spark "Submission on Copper services investigation draft recommendation report" (9 April 2025), paragraphs 6 and 19.
197 Chorus "Cross Submission on Copper Services Investigation draft investigation report" (5 May 2025), paragraph 11.

Submitter(s)	Submission summary	Response in cross-submission	Our response
Terence[198]	Removing copper absolves Chorus of responsibility under the TSO to provide workable and affordable alternatives.		This is incorrect. The TSO is a separate regulatory tool and is not impacted by the regulation of copper services in Schedule 1 of the Act (the regulation in focus of this Investigation).

[198] Terence "Submission on Copper Services Investigation draft report" (9 April 2025), page 2.

Table A2 Submissions on competition analysis

Submitter(s)	Submission	Response in cross-submission	Our response
Tuatahi[199]	Disagree with the view that substitutes should provide a similar level of performance, even at a cheaper price. Agree this view is appropriate when looking at copper but not the wider broadband market. Note the market is characterised by a chain of substitution.		We note the agreement that this approach is appropriate for consideration of the copper network. We have taken this approach as copper (ADSL and VDSL) offers performance at the lower end compared to other technologies. An alternative network offering services with a significantly worse level of performance (or at a significantly higher price) is unlikely to be considered by consumers to be a substitute (let alone a close substitute).

[199] Tuatahi "Submission on Commerce Commission Draft recommendation report for the Copper Services Investigation under section 69AH of the Telecommunications Act" (9 April 2025), paragraphs 9 and 10.

Submitter(s)	Submission	Response in cross-submission	Our response
Angela,[200] **Neill**,[201] **Rural Connect**,[202] **Spark**,[203] and **Terence**[204]	Consumer options vary on a premises by premises basis, including coverage of alternatives (eg, mobile coverage). There will be consumers who have limited options. On average, consumers may not experience disruption, but some consumers could face a decline in quality or affordability. The theoretical availability of alternatives does not prove practical or affordable access. There is a need for caution when making generalisations about substitutability.	**Chorus**:[205] While individual experiences are important, the Commission must focus on competition in the relevant markets. **Kathryn**:[206] Agree that non-copper rural communication services are not available, affordable or suitable for many rural situations.	While useful, the information needed to determine real-world connectivity options at every address in RCAs does not exist. It would cost hundreds of thousands of dollars to create and would quickly become out of date. Our focus has been undertaking competition analysis. Not every consumer needs a similar or better alternative at the same or cheaper price in order for competition to be present and strong. We have used the best data available in forming our recommendation. The emergence of new and near-ubiquitous technologies such as LEO, which offer competitive pricing and performance compared to copper, is likely to limit the instances where copper consumers experience a decline in quality or affordability.

200 Angela "Submission on Copper Services Investigation draft report" (8 April 2025), page 1.
201 Neill "Submission to the Commerce Commission: Copper Services Investigation under Section 69AH of the Telecommunications Act" (9 April 2025), page 1.
202 Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraphs 2, 29–31 and 33.
203 Spark "Submission on Copper services investigation draft recommendation report" (9 April 2025), paragraphs 7, 9 and 11.
204 Terence "Submission on Copper Services Investigation draft report" (9 April 2025), page 2.
205 Chorus "Cross Submission on Copper Services Investigation draft investigation report" (5 May 2025), paragraph 9.
206 Kathryn "Cross submission on Copper Services Investigation draft investigation report" (21 April 2025), page 1.

Submitter(s)	Submission	Response in cross-submission	Our response
Bobby[207]	LEO (and other satellite systems) are vulnerable to natural phenomena, military activity, as well as represent security risks. Relying on one type of high cost technology is unwise.		Our competition analysis does not rely solely on LEO, nor any other single technology. We consider competitive constraints from all alternatives viewed as close substitutes, which include LEO and other technologies. We have included and analysed fault and disconnection figures for technologies in forming our draft and final views. Taking a forward-looking view, we also expect at least one other LEO provider to enter the market in the short-term, reducing risks of reliance on one provider.
Chorus,[208] and **Gravity**[209]	Disagree with the exclusion of voice over GEO as a voice alternative. Disagree that a focus on single characteristic (latency) is appropriate, and state that many consumers are satisfied with calls with higher latencies. Also note that a larger number of consumers are likely using voice over GEO via OTT apps than reported.		We agree that a larger number of consumers are likely using GEO for voice via OTT apps and have clarified this in this final report. While we note that the use of a few metrics for voice quality does not provide a complete picture (as outlined in our draft report), we have included additional data highlighting that in Australia, GEO voice services likely provide a service many users are dissatisfied with.

207 Bobby "Submission on Copper Services Investigation draft report" (9 April 2025), pages 1 and 2.

208 Chorus "Submission on Copper Services Investigation Draft Recommendation" (9 April 2025), paragraph 12.

209 Gravity "Submission on Copper Services Investigation under section 69AH of the Telecommunications Act – Draft Recommendation Report" (8 April 2025), page 1.

Submitter(s)	Submission	Response in cross-submission	Our response
			As such, we retain the view that GEO is excluded as a voice alternative. We note that the impact of including GEO as a voice alternative would only further strengthen our recommendation to deregulate copper voice services.
Dave[210]	Copper should remain in areas where there is no fibre. Chorus has no capital in owning the network and just maintain it. Removing copper regulation will impact competition.		Our Investigation is based on our assessment of competition. We must consider what best promotes competition for the long-term benefit of end-users of telecommunications services. With declining copper use and an aging technology prone to faults, this means considering whether regulation of copper still best promotes competition.
Gravity[211]	Gravity is able to offer GEO Voice Services at $60 per month for a stand-alone service or $29 as part of an internet bundle which is on par or better than copper and better than LEO.		We note this point. However, as our view is that GEO voice likely would not support a quality voice service, we have not included GEO voice service pricing in our analysis.

[210] Dave "Submission on Copper Services Investigation draft report" (7 April 2025), page 1.

[211] Gravity "Submission on Copper Services Investigation under section 69AH of the Telecommunications Act – Draft Recommendation Report" (8 April 2025), page 2.

Submitter(s)	Submission	Response in cross-submission	Our response
Gravity,[212] **Rural Connect**,[213] and **Terence**[214]	LEO is in its infancy and does not represent the answer to the problem (of alternatives to copper withdrawal). Key issues stated involve no local operator or sales support, extended downtime if failure, limited funding options, power requirements, lack of regulatory oversight, no VoIP service, non-competitive pricing and no assurances of service. LEO also suffers from reliability and security risks.		Our analysis considers the level of competitive constraint LEO services provide. We do this for all alternatives and consider elements such as pricing and coverage. We also use actual consumer switching and satisfaction data to inform our view. Our analysis supports the view that LEO is a close substitute for copper services. We expect another LEO provider to enter the market in the near future providing further options and competition.

212 Gravity "Submission on Copper Services Investigation under section 69AH of the Telecommunications Act – Draft Recommendation Report" (8 April 2025), page 3.

213 Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraph 6.

214 Terence "Submission on Copper Services Investigation draft report" (9 April 2025), page 1.

Submitter(s)	Submission	Response in cross-submission	Our response
One NZ[215]	(Regarding not 100% of consumers being able to access LEO and GEO satellite broadband services) Whether or not an individual user can access a satellite service using that coverage is self-evidently a "service issue". The fact that an individual end-user cannot access a service does not alter or delimit the nature of the coverage.	**Chorus**:[216] Agree with One NZ and state it does not diminish the competitive constraint imposed.	We agree that a consumer not being able to access a service does not alter the coverage of that service. However, for wireless broadband services, coverage and commercial availability are different (ie, is it present versus is it present and can I access it). We disagree with Chorus's response (noting it extended One NZ's statement beyond satellite). A service that notionally covered 100% of the country but was not able to be accessed by new consumers would not pose much of a competitive constraint on Chorus's copper network, as it would be unable to accommodate consumers who are on the copper network.
Rural Connect[217]	Installation of LEO satellite can be difficult and costly; we have received numerous inquiries about installations.		We have collected further information on installation requirements and costs for alternatives (including LEO). This has been included in our analysis to form our recommendation.

215 One NZ "Submission on Copper Services Investigation draft report" (9 April 2025), paragraph 3 and footnote 1.
216 Chorus "Cross Submission on Copper Services Investigation draft investigation report" (5 May 2025), paragraph 10.
217 Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraphs 4–6.

Submitter(s)	Submission	Response in cross-submission	Our response
Rural Connect[218]	Some key data caveats and assumptions such as coverage of satellite services, actual versus advertised performance should be more prominent in figures, tables or narrative to support full understanding.		Where appropriate, we have made information more accessible (eg, bought out of footnotes into the text) and visually adapted graphs to further highlight differences in data used.
Rural Connect[219]	LEO could be a close substitute for many people, potentially meeting the needs of 75% of rural users. It is important to consider the specific challenges and limitations that might affect the remaining 25% of users, particularly in terms of installation constraints, local support, and affordability.		We have considered the coverage, price and non-price aspects of all non-copper technologies, and the level of competitive constraint they provide on copper services across RCAs. Our assessment and recommendation do not rely on any one technology, LEO or otherwise.

[218] Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraphs 7, 9–11 and 36.
[219] Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraph 8.

Submitter(s)	Submission	Response in cross-submission	Our response
Rural Connect[220]	GEO satellite offers substantially poorer performance than VDSL for most consumers, particularly for latency sensitive applications and considering upfront costs and contractual commitments. In our opinion, GEO satellite service is not a "close substitute" for most users. If the report is to include GEO satellite as a "close substitute", we believe it is essential that independent performance testing be conducted to substantiate this classification.		We disagree that independent performance testing is required for us to deem GEO satellite as a close substitute. We have a range of figures such as advertised speeds, latency and data caps in our analysis. While these are not all actual performance, our view is that we have enough information to form a view as to the level of competitive constraint these services provide. We have done some further analysis on installation costs as part of our analysis. As a result, we have not placed much weight on GEO as a competitive constraint.
Rural Connect[221]	While 4G FWA may serve as an adequate replacement for some users, its variable performance, lack of transparency around minimum speeds, and inconsistent pricing render it unsuitable as a universal substitute for copper services. This lack of certainty may undermine confidence in FWA as a reliable substitute for copper services.		We do not propose FWA as a universal substitute for copper services, but we do believe it represents a close substitute for both copper broadband and voice services based on overall coverage, service quality and pricing analysis.

[220] Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraphs 12–14.
[221] Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraphs 15, 17 and 25.

Submitter(s)	Submission	Response in cross-submission	Our response
Rural Connect[222]	It would be useful to compare MBNZ data on 4G FWA % of tests at certain speeds to compare how close a substitute FWA is to copper. It would also be useful to consider online gaming as a use case for comparing whether FWA is a close substitute due to its high latency.		We have noted in our final report that FWA (like other wireless technologies) is more affected during peak times (ie, slower speeds) as per MBNZ data. We have also outlined that FWA may not be fully suitable for consumers who game online due to speed and latency issues.
Rural Connect[223]	It would be useful to understand how the "certain level of performance" MNOs aim to achieve using stop sells on FWA compares to legacy technologies such as ADSL and VDSL. This comparison may be estimable using the raw MBNZ performance data and could help inform whether FWA represents a suitable substitute in practice.		We do not have data on the level of performance MNOs aim to achieve using stop sells on FWA. This would be highly commercially sensitive information and our view is that it would not provide much further insight. We already have average speeds of services in use and know stop sells are used by MNOs so can safely assume the performance levels sought are not lower than what we see currently.

222 Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraphs 19 and 22.
223 Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraph 20.

Submitter(s)	Submission	Response in cross-submission	Our response
Rural Connect[224]	It would be helpful for the report to clarify whether MNOs are investing in additional capacity or if there is an expectation that the government will fund future network upgrades.		All three MNOs have sold TowerCos their tower infrastructure. As part of the sale agreements, the TowerCos all agreed to build more towers over the next 10 years, which will increase capacity and/or expand the footprint of the network.[225] 5G spectrum was also allocated on the basis that MNOs would extend their 4G and 5G coverage and capacity in regional areas.
Rural Connect[226]	FWA pricing can vary depending on location and pricing advertised does appear inconsistent with pricing in draft report. Early termination fees can also be high. The transition to new services will incur costs including for installation of antenna and satellite dishes.		We have updated our pricing data for our final report. We have taken a more granular approach to this data collection and have also collected installation cost information to support the analysis. While we agree that early termination fees can be high across a range of technologies, these fees can be reduced with different length terms or upfront CPE and installation payments. As such, we do not believe early termination fees would be a useful element for our competition assessment.

224 Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraph 21.

225 See NZX "Spark announces sale of 70% of TowerCo business for $900m" (12 July 2022); One NZ "Vodafone to sell its passive mobile tower assets to InfraRed Capital Partners and Northleaf Capital Partners alongside Infratil reinvestment" (18 July 2022); and NZX "Spark NZ confirms Connexa to acquire 2degrees' tower assets" (15 December 2022).

226 Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraphs 23, 24 and 38.

Submitter(s)	Submission	Response in cross-submission	Our response
Rural Connect[227]	If viable substitutes to copper services are available in nearly all areas, it is important to understand what accounts for the continued popularity and persistence of copper-based connections.		On the contrary, our switching data shows that consumers are continuing to move away from copper to broadband and voice alternatives in large numbers. We acknowledge that there are some positive (although sometimes misplaced) perceptions of copper (eg, power supply and backup which we discuss in paragraphs 3.139–3.143), which may have reinforced inertia among some rural copper consumers. We also note that CPE and installation costs may represent barriers to switching for some consumers (we discuss these costs in paragraphs 3.70–3.71, Table 3.3 and Figure 3.7). Our most up-to-date data shows there are now 56,000 UBA connections and 12,000 UCLF only connections in RCAs (noting RCAs cover ~223,100 premises).

[227] Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraph 32.

Submitter(s)	Submission	Response in cross-submission	Our response
Rural Connect[228]	As most alternatives are wireless based, users may face obstruction issues.		We agree that some users may face obstruction issues. Coverage will not mean commercial availability for all consumers. However, FWA and non-cellular FWA services benefit from line of sight to a fixed terrestrial point, while GEO requires line of sight to a fixed satellite and LEO just requires line of sight to a section of the sky. As such, consumers have alternative line of sight options if one technology is not possible due to obstruction.
RWNZ[229]	There is a lack of New Zealand-specific data in the analysis, for instance regarding the quality of voice services. More analysis needs to be done to identify gaps in coverage and capability.		We acknowledge that there are areas of our analysis where further data would be beneficial to provide a more complete view. However, we have used all of the data available to us and made clear where the caveats and limitations exist. We have used updated data in the final report, including voice quality analysis done in Australia.
RWNZ[230]	Note that many of the alternatives have higher upfront costs (equipment and installation) which could act as a barrier to switching.		We have sourced and included more extensive information on upfront costs (including potential installation costs) in our final report.

228 Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraph 37.
229 RWNZ "Submission on Copper Services Investigation" (28 March 2025), paragraph 6.
230 RWNZ "Submission on Copper Services Investigation" (28 March 2025), paragraph 7.

Submitter(s)	Submission	Response in cross-submission	Our response
Terence[231]	Deregulation would allow Chorus to significantly increase prices on ADSL offerings without any realistic alternatives at many addresses—this is monopolistic and non-competitive behaviour.		As we mentioned in our draft report, copper deregulation would allow Chorus to change the price of its copper services. While this may impact consumers of such services, any price rise is likely to encourage consumers to move off copper to an alternative. Our assessment considers the promotion of competition for the long-term benefit of consumers and so factors in this as part of our considerations.
Terence[232]	Before copper is deregulated, the realities of available, reliable and affordable alternatives should be thoroughly investigated as most of the touted alternatives are not feasible for some, if not many, rural areas, leaving copper as the only viable option.		We appreciate that not all consumers will have all alternatives available and that quality will likely vary. Some consumers may face a decline in quality if copper were to be removed by Chorus following deregulation. Our draft and final reports both make use of the best data available.

231 Terence "Submission on Copper Services Investigation draft report" (9 April 2025), page 2.
232 Terence "Submission on Copper Services Investigation draft report" (9 April 2025), page 2.

Table A3 Submissions on copper resilience

Submitter(s)	Submission	Our response
Angela[233]	Having been moved off of copper recently, the new VoIP service is unreliable. The old copper land line was reliable, especially during natural disasters. Without reliable phones we have to travel to make calls and are isolated with limited options.	We appreciate that the removal of copper would not be the same experience for all consumers and that different technologies will likely perform differently to copper. While we agree that copper has traditionally been the means of communication in the past in emergencies (often due to the fact there were limited alternatives), we disagree that copper will be more reliable into the future. The network is aging and the number of faults will continue to increase and these will take longer to fix.
Bobby,[234] and **Dave**[235]	The copper network remains a vital backup during civil defence emergencies. For example, the copper network was relied on during a 2006 weather event when cell towers ran out of power.	Technology has evolved significantly since 2006, including regarding the resilience of telecommunications services. In more recent weather events (eg, Cyclone Gabrielle), copper has performed relatively poorly resilience-wise compared to other technologies. While some copper services will continue to work in a power outage (where households have a wired phone), most will only last until the battery in the local street-side cabinet runs out (4–8 hours). In a lengthy power outage, all forms of communications networks are affected because they all ultimately rely on power.

233 Angela "Submission on Copper Services Investigation draft report" (8 April 2025), page 1.
234 Bobby "Submission on Copper Services Investigation draft report" (9 April 2025), page 1.
235 Dave "Submission on Copper Services Investigation draft report" (7 April 2025), page 1.

Submitter(s)	Submission	Our response
Rural Connect,[236] and **Spark**[237]	Backup power will be an important consideration for some users transitioning to alternative technologies, particularly those with limited or no indoor mobile coverage.	We do not view power supply/battery backup as a characteristic of the market. Even if we did, most copper lines are now powered by local cabinets, which only have 4–8 hour battery backup in case of a power outage. In extended power outages, all telecommunications technologies, including copper, would be impacted.

[236] Rural Connect "Submission on Copper Services Investigation draft report" (7 April 2025), paragraphs 26–28 and 41–46.

[237] Spark "Submission on Copper services investigation draft recommendation report" (9 April 2025), paragraph 7.

Attachment B How the relevant copper services are described in legislation[238]

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

[238] 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
	(b) Chorus's unbundled copper low frequency service (including any necessary supporting equipment).
Chorus's unbundled copper local loop network backhaul – telephone exchange to interconnect point (UCLL Backhaul)	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,— (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).