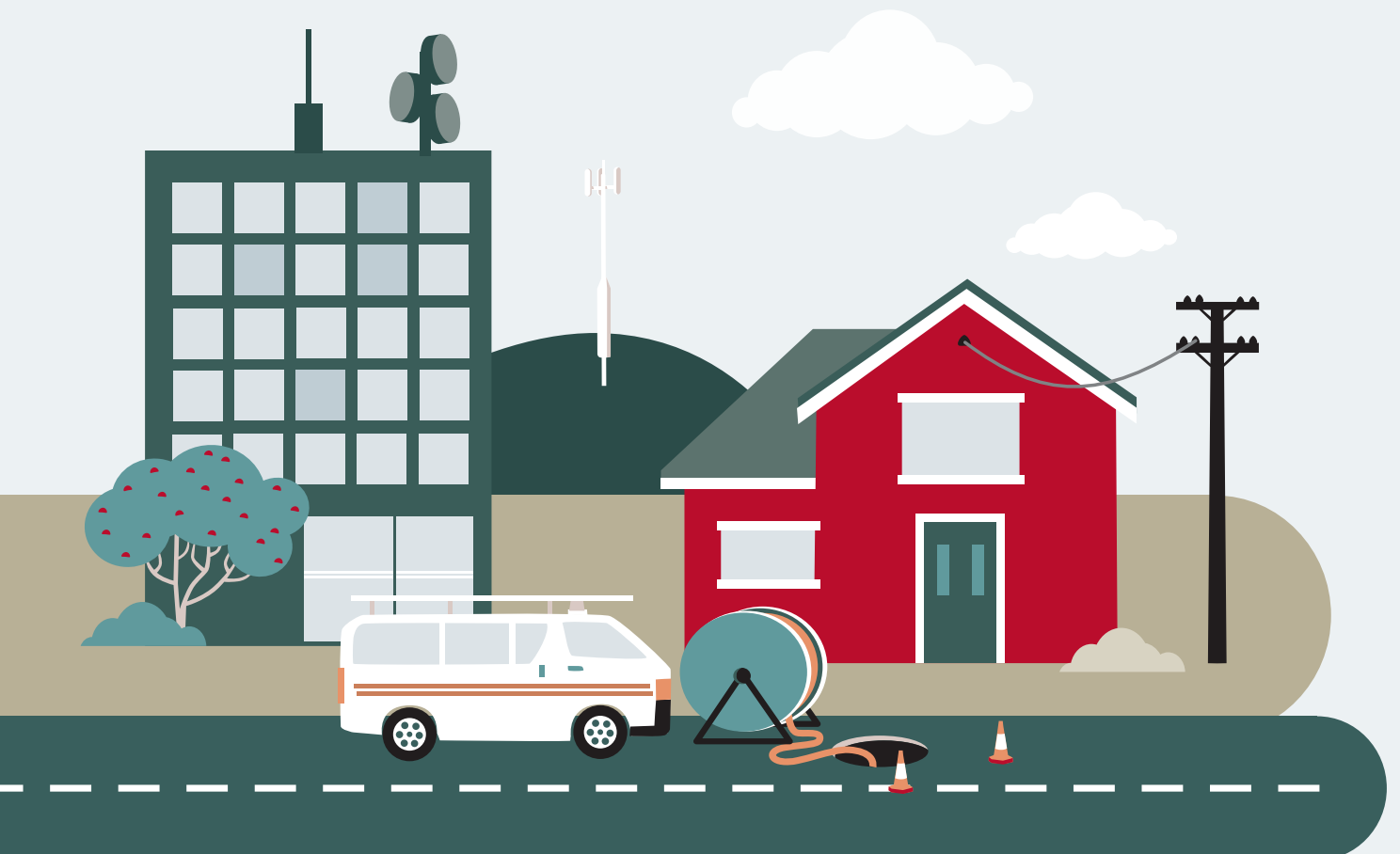




# 2022 Telecommunications Monitoring Report

Pūrongo Aroturuki  
Torotoro Waea 2022



## LIST OF DEFINED TERMS

<b>Act</b>	Telecommunications Act 2001
<b>ADSL</b>	Asymmetric digital subscriber line – a copper-based technology that can provide basic fixed-line broadband services
<b>CIP</b>	Crown Infrastructure Partners Limited – a Crown-owned company formerly known as Crown Fibre Holdings Limited
<b>Commission</b>	Commerce Commission
<b>CPI</b>	Consumers price index
<b>Geo</b>	Geostationary orbit – satellites found at 35,000km above the Earth’s surface
<b>Gbps</b>	Gigabyte – 1 gigabyte = 1,024 megabytes
<b>HFC cable</b>	Hybrid fibre-coaxial cable – broadband network in parts of Wellington, Kapiti and Christchurch that uses fibre-optic and copper cabling
<b>HHI</b>	Herfindahl-Hirschman Index – measure of market concentration
<b>LAP</b>	Local aggregation path
<b>Latency</b>	The amount of time it takes for a data packet to go from one place to another, which is the delay an internet connection experiences – Low latency is better than high latency
<b>LEO</b>	Low Earth orbit – satellites generally found 500–1,500km above the Earth’s surface
<b>LFC</b>	Local fibre company – the four companies that partnered with Crown Infrastructure Partners Limited to build and provide wholesale access to the UFB fibre network
<b>M-Lab</b>	Measurement Lab – an open-source project dedicated to providing an open, verifiable measurement platform for global network performance
<b>MB</b>	Megabyte – a multiple of the unit byte for measuring the quantity of digital information
<b>MBNZ</b>	Measuring Broadband New Zealand – a programme run by the Commission to measure the broadband performance of New Zealand households
<b>MBSF</b>	Mobile Black Spot Fund
<b>Mbps</b>	Megabits per second – used to measure data transfer speeds
<b>MNO</b>	Mobile network operator
<b>MVNO</b>	Mobile virtual network operator – an operator that provides mobile phone services but does not generally have its own licensed frequency allocation of radio spectrum or much of the infrastructure required to provide mobile telephone services and therefore relies on buying services from an operator with a full mobile network – the amount of control it has over the services it offers will vary according to the nature of its agreement
<b>MTAS</b>	Mobile termination access services
<b>OECD</b>	Organisation for Economic Co operation and Development

<b>PPP</b>	Purchasing power parity – an exchange rate designed to equalise standard of living differences between countries and generally accepted as an appropriate conversion method for non tradable goods and services
<b>PSTN</b>	Public switched telephone network
<b>RBI</b>	Rural Broadband Initiative – government programme to improve and enhance broadband coverage
<b>RCG</b>	Rural Connectivity Group – joint venture between 2degrees Spark and Vodafone
<b>RCU</b>	Rural Capacity Upgrade programme
<b>RSP</b>	Retail service provider
<b>SFA</b>	Specified fibre area
<b>TCF</b>	New Zealand Telecommunications Forum – telecommunications industry body
<b>Tuatahi</b>	Tuatahi First Fibre – UFB partner operating in Waikato, Bay of Plenty, Taranaki and Whanganui
<b>UBA</b>	Unbundled bitstream access
<b>UCLF</b>	The unbundled copper low frequency (UCLF) service allows access seekers to lease the low frequency portion of Chorus's local loop network to provide fixed-line voice services to consumers
<b>UFB</b>	Ultra-Fast Broadband – 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
<b>UFB2</b>	The extension of the UFB1 initiative
<b>VDSL</b>	Very high-speed digital subscriber line – a copper-based technology that provides a better broadband connection than ADSL
<b>WiMAX</b>	Worldwide Interoperability for Microwave Access – technology aimed at providing wireless data over long distances in a variety of ways, from point-to-point links to full mobile cellular type access
<b>WISP</b>	Wireless internet service provider

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# FOREWORD

## WĀHINGA KŌRERO

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Tēnā koutou

The telecommunications landscape in New Zealand has changed dramatically since we issued our first Annual Monitoring Report over 17 years ago.

A series of events, including the structural separation of Telecom and the launch of UFB, have triggered a wave of investment, innovation and competition that have completely transformed the industry and competitive landscape.

The Annual Monitoring Report, as our flagship monitoring programme, needs to keep pace with these developments and provide the most comprehensive view possible of the performance and development of the market.

This year, we have revised our approach to the report so that it:

- separates out the experience of urban, rural and mobile consumers, which can be very different for both broadband services at home and mobile services on the move
- follows the links between market structure and outcomes as well as the infrastructure, wholesale and retail levels of the market, providing deeper insights into performance and how this flows through to customer experience and satisfaction.

This approach has led to a longer and more detailed report than previous editions, and the redesign remains a work in progress that we aim to refine in future reports.

In particular, we will be working to close the gap in the data available for rural areas, which limits our ability to report on outcomes for rural consumers to the same extent we can currently do for urban consumers.

Additionally, given recent severe weather events and the likelihood of more frequent events in the future, we are considering what monitoring might be useful in relation to the resilience of telecommunications networks and services.

We want to hear your views on how successfully we have achieved our objective of presenting a more insightful end-to-end view of the development and performance of the market.

We welcome feedback on the new structure and style of the report, what might be missing and where improvements could be made for the future. Shortly, we will be communicating the process and timing for providing your views.

Your feedback will help ensure that we maximise the relevance and usefulness of the report for all stakeholders going forward.

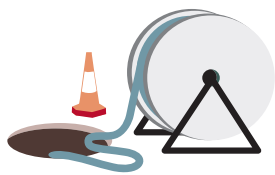
Ngā mihi nui

Tristan Gilbertson  
Telecommunications Commissioner



## 72,000 urban households

shifted off copper to fibre or 4G wireless broadband



### Fibre Max (1Gbps)

is the fastest-growing fibre plan (30% of all new fibre connections)



### Up to 67% speed drop

due to WiFi and other in-home factors



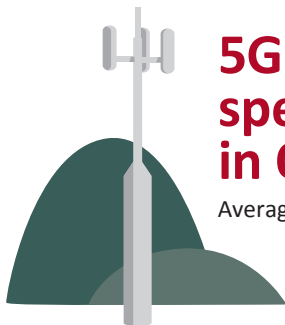
### Starlink is 144% faster

than the fastest rural copper technology (VDSL)



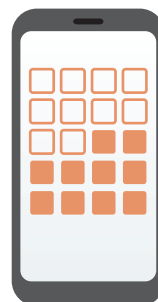
### 4G wireless broadband is 37% slower in rural

areas compared to urban areas



### 5G download speed is 4th in OECD

Averaging 257Mbps



### 58% of mobile consumers

have been with their current provider for 5 years or more

## SUMMARY OF KEY STATISTICS

### NGĀ TINO TATAURANGA: HE WHAKAPOTONGA

#### Urban Connectivity at Home

##### Honotanga ā-tāone i rō kāinga

- 87% of Kiwis (1.8 million homes/businesses) can connect to fibre, following completion of the UFB programme in December 2022, with an average uptake rate of 70%.
- Consumers continue to move away from copper with a 42% drop in urban copper broadband connections, equating to 72,000 consumers leaving the copper network.
- Fibre 300 is the most popular fibre plan (48% of all fibre connections) and Fibre Max is the fastest-growing fibre plan (30% of new Chorus fibre connections).
- Initial testing shows drops in speeds between the router and the device across all technologies on home WiFi networks with the greatest drops observed for high-speed plans, highlighting the importance of in-home WiFi set-up.
- Wireless broadband connections have increased by 14% to 315,000 connections, including around 3,000 connections on 5G wireless broadband – the fourth-highest level of wireless broadband uptake per capita in the OECD.
- Most broadband connections are uncapped (84%), with caps more common on wireless broadband plans than on fibre broadband plans.
- Uptake of residential energy/broadband bundles has increased by 16% in the last year making this one of the fastest-growing broadband segments.
- New Zealand's average broadband download speed is 94Mbps – the 9th-fastest in the OECD ahead of Australia, Ireland, the UK and Germany – an 8Mbps increase on last year.
- In trans-Tasman testing, New Zealand has faster fibre download speeds but slower 4G wireless broadband download speeds than Australia.
- Fibre 300 and 4G wireless broadband pricing is above the OECD average but Fibre Max pricing is below.
- Fibre 300 and Fibre Max retail prices have stayed flat, but routers are increasingly not being offered as part of the base price for broadband services.
- Percentage of household average net income required to purchase Fibre 300 broadband ranges from 1.1% to 1.8% across urban areas of New Zealand.
- 41% of broadband consumers have been with the same provider for more than 5 years.
- Urban broadband consumers are most satisfied with coverage/availability and least satisfied with pricing and customer service.



## Rural Connectivity at Home

### Honotanga ā-tuawhenua i rō kāinga

- Copper connections in rural areas have remained fairly steady with only a small decrease (5%) in connections over the past year, and less than half of rural New Zealand is served by copper technology.
- Wireless technologies serve the rest of rural New Zealand – divided between WiMAX broadband provided by specialist rural operators, 4G wireless broadband provided by mobile operators and satellite services provided by local and international operators.
- Satellite has been the fastest-growing technology following the entry of Starlink, with connections increasing from 1,900 to 12,000 over the past year – the fourth-highest level of satellite connections per capita in the OECD.
- Testing of ADSL and VDSL broadband speeds shows almost no difference between urban and rural areas.
- 4G wireless broadband testing in rural areas shows download speeds are 37% slower than 4G wireless broadband services in urban areas.
- Testing shows average Starlink download speeds are 106Mbps, which is 144% faster than VDSL in rural areas.
- Government and industry continue to invest in improving rural broadband performance with 6,700 rural premises benefiting from broadband capacity upgrades and 7,700 rural premises benefiting from RBI2 over the past year.
- National copper broadband pricing is \$20 more expensive per month than the OECD average.
- Copper pricing has the greatest variability across all the retail pricing we monitor the highest price is \$32 per month more expensive than the lowest price.
- Rural 4G wireless broadband pricing ranges from \$85 to \$156 per month, which can be up to \$100 more expensive than in urban areas.
- WiMAX broadband pricing ranges from \$70 to \$200 per month, with set-up costs ranging from \$0 to \$490 for equipment.
- Starlink pricing is \$159 per month with set-up costs of up to \$1,040 for equipment.
- Data caps remain a feature of rural broadband plans – particularly for 4G wireless broadband and WiMAX broadband services.
- The percentage of household average net income required for a basic copper broadband service in rural areas ranges from 1.1% to 1.7%, which is similar to the 1.1 – 1.8% needed for Fibre 300 in urban areas.
- The percentage of household average net income required for the fastest service available to most rural households (Starlink) ranges from 2.0% to 3.1%.
- 33% of rural broadband customers have been with their current provider for more than 5 years compared to 41% of urban broadband customers.
- Most farmers and growers (56%) rate their broadband service as poor or average – Southland (70%) and Marlborough (67%) have the highest level of dissatisfaction.
- Farmers and growers using copper technology are least satisfied with their broadband service – 73% rate their service as poor or average.

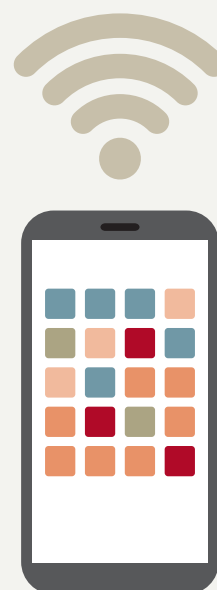




## Connectivity on the Move

### Honotanga hāereere

- The mobile market is highly concentrated with the three largest providers – Spark, Vodafone and 2degrees – holding 98.7% of the market.
- Vocus exited but MyRepublic entered, as an MVNO – leaving a total of six MVNOs serving the market.
- MVNO market share dropped from 1.8% to 1.3% following the Vocus/2degrees merger.
- All three mobile operators are now providing 5G services following the launch of the 2degrees 5G network in February 2022.
- Average 5G mobile coverage has increased to 18% of the population.
- Average 3G and 4G coverage has remained steady at 98% of the population.
- An additional 25 tourism sites and 182km of state highway gained mobile coverage under the government’s Mobile Blackspot Fund.
- Spark and Vodafone have divested their mobile towers and 2degrees has applied to do the same – consistent with global trends towards the sale of passive infrastructure by mobile providers.
- Average 5G download speeds are 256.7Mbps – the fourth fastest in the OECD in Opensignal testing.
- Pre-paid connections have dropped by 3% – continuing a trend away from pre-paid and towards post-paid plans over the past 8 years.
- Endless post-paid connections have increased by 48% over the past year – continuing a trend towards these particular plans over the past 4 years.
- Pre-paid consumers use an average of 2.8GB of mobile data per month compared to post-paid consumers who use an average of 6.9GB per month.
- The price an average post-paid consumer needs to pay to meet their usage is \$12 per month higher than the OECD average.
- The price an average pre-paid consumer needs to pay to meet their usage is \$2 per month lower than the OECD average.
- Mobile termination rates have not fallen below the regulated price caps set over a decade ago. Over that period, there have been reductions in regulated mobile termination rates in other comparable countries.
- 58% of mobile consumers have been with the same provider for more than five years.
- The level of switching between mobile providers during the past 12 months is 3 – 5% of all mobile connections.
- Consumers are getting better usage and spend information from their providers but more can be done to help ensure consumers are on the right plan for their needs.
- Initial results indicate mobile consumers are most satisfied with coverage and availability and least satisfied with customer service.
- Farmers and growers tend to rate their mobile coverage as poor or average (59%) – Manawatū-Whanganui (68%) and Marlborough (67%) are the least-satisfied regions.



### Purpose of this report

This is the Commerce Commission’s (the **Commission**) 16th annual telecommunications market monitoring report. The purpose of this report is to inform stakeholders on the state of Aotearoa New Zealand’s telecommunications sector. In particular, this report provides an overview of competition and key developments in New Zealand’s telecommunications markets in 2022.

This report is released under section 9A of the Telecommunications Act 2001 (the Act). Section 9A requires us to monitor competition in, and the performance and development of, telecommunications markets.

### Layout of this report

This report adopts a new format structured around the three ways in which consumers experience telecommunications services – urban connectivity at home, rural connectivity at home, and connectivity on the move.

- **Urban connectivity at home** focuses on the fixed location broadband experience within Ultra-Fast Broadband (**UFB**) areas where fibre is available.

- **Rural connectivity at home** focuses on the fixed location broadband experience outside UFB areas where fibre is unavailable.<sup>1</sup>
- **Connectivity on the move** focuses on location-independent mobile services (texting, calling and data) experiences.

We have chosen to split broadband across two chapters to reflect that the experience of consumers (such as in choice of providers and plans) differs between areas that have access to fibre and those that do not.

In addition, with the completion of the UFB fibre network, there is now an increased focus on the experience of the 13% of New Zealanders outside the fibre footprint.

We have chosen to have a separate chapter on mobile services as, for the most part, text, call and mobile data services are consumed independently of fixed broadband services. As mobile networks are provided on a nationwide basis (with no rural-specific plans) we have covered mobile networks within one chapter.



Three key chapters structured around the ways in which consumers experience telecommunications services

1 We have split urban and rural based on fibre availability solely for the purpose of this report. This split may not align with other definitions of urban and rural.

Each chapter is then split into two sections – market structure and market outcomes.

- **Market structure** covers structural elements of telecommunications markets from infrastructure availability and the type and share of wholesale and retail offerings using that infrastructure through to the transparency and understanding of these offers by consumers.
- **Market outcomes** cover the performance of telecommunications infrastructure and the levels of wholesale and retail pricing through to consumer affordability and satisfaction.

Within each section, an end-to-end view of the telecommunications sector is provided. There are sub-headings for infrastructure, wholesale, retail, and consumer.

- **Infrastructure** covers the physical components of telecommunications networks. For example, where do networks provide coverage and what quality of service do networks provide?
- **Wholesale** covers the regulated and commercial wholesale market. For example, what wholesale services are made available by infrastructure owners to retail service providers and at what prices?
- **Retail** covers the retail market to end consumers. For example, what are the characteristics of services made available to end consumers and at what prices?
- **Consumer** covers aspects of retail service quality. For example, can consumers understand offers in the telecommunications market and how satisfied are consumers with telecommunications services?

There is also a separate special topics section covering topics that do not fit within the main structure.

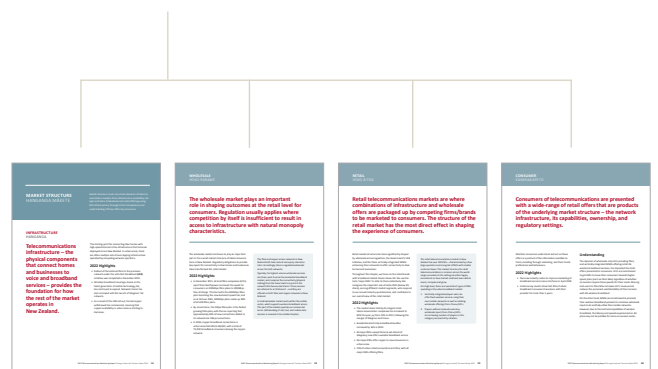
This year, landlines and complaints are special topics in this report.



Chapter



Two sections within each chapter – market structure and market outcomes



Each section features subsections for infrastructure, wholesale, retail, and consumer

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## Our views

The primary purpose of this report is to inform. Throughout this report, we provide observations and commentary on changes in telecommunications markets in 2022. These are our high-level, current views based on the information available at the time of writing this report. Our views may shift following further analysis and/or obtaining further information.

While this report will inform our wider regulatory activities, no direct regulatory intervention will arise based solely on the analysis contained in this report. Any future regulatory interventions will occur after further analysis and consultation with affected parties and wider stakeholders.

## Industry questionnaire and other data sources

This report draws on data from a range of data sources. The relevant sources for each figure and statistic are noted in the footnotes throughout the report. Unless otherwise noted, the figures and statistics are as at 30 June 2022.

The revised layout of this year's report has placed different requirements on our existing data – primarily, the need to split national-level metrics into urban and rural. It has also highlighted aspects of the market that we have not historically collected data for but may in the future. We have indicated, by way of footnotes and the addition of confidence intervals on charts, how we have treated the data and our analytical approach.

## Industry questionnaire

Each year, we send a questionnaire to the industry requesting information for the financial year ending in June. The industry questionnaire collects much of the information required to compile this report, and we thank all the respondents who submitted data.

Please note that results from every question contained in the industry questionnaire are not presented in this report. Instead, aggregate results from our annual industry questionnaire are published in a spreadsheet alongside this report on our website.<sup>2</sup>

## External data

This report also draws on publicly available information. Examples include Crown Infrastructure Partners (CIP) reports, telecommunications companies' annual reports and websites.

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<sup>2</sup> <https://comcom.govt.nz/regulated-industries/telecommunications/monitoring-the-telecommunications-market/annual-telecommunications-market-monitoring-report>

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# Urban connectivity at home

Honotanga  
ā-tāone  
i rō kāinga

Where fibre  
broadband is  
**available**



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## MARKET STRUCTURE HANGANGA MĀKETE

Market structure covers structural elements of telecommunications markets from infrastructure availability and the type and share of wholesale and retail offerings using that infrastructure through to the transparency and understanding of these offers by consumers.

### INFRASTRUCTURE HANGANGA

**Telecommunications infrastructure – the physical components that connect homes and businesses to voice and broadband services – provides the foundation for how the rest of the market operates in New Zealand.**

The starting point for connecting Kiwi homes with high-speed internet is the infrastructure that has been deployed across New Zealand. In urban areas, there are often multiple sets of overlapping infrastructure operated by competing network operators.

#### 2022 Highlights

- Roll-out of the national fibre to the premises network under the Ultra-Fast Broadband (UFB) initiative was completed in December 2022.
- Wireless broadband coverage, based on the latest generation of mobile technology 5G, has continued to expand. Network choice has also increased with the launch of 2degrees' 5G network.
- As a result of the UFB roll-out, formal copper withdrawal has commenced, meaning that copper availability in urban areas is starting to decrease.

## Fibre

In the year to 30 June 2022, an additional 48,000 premises gained access to the UFB network.<sup>3</sup> This is lower than 2021 when 87,000 premises gained access, reflecting the fact that the programme had moved into its final phase focused on reaching the last areas to be connected.

The UFB roll-out programme was completed in December 2022.<sup>4</sup> Over 1.8 million homes and businesses (or 87% of New Zealanders) can now access fibre.<sup>5</sup>

The national fibre to the premises network in New Zealand has been built through a public-private partnership known as UFB. Four fibre network operators, often referred to collectively as the local fibre companies (**LFCS**) were contracted to build and operate the network in different geographic areas.

- Northpower operates in Kaipara and Whangārei. It is the smallest of the four UFB partners.
- Enable operates in the wider Christchurch area.
- Tuatahi First Fibre (**Tuatahi**) operates in Waikato, Bay of Plenty, Taranaki and Whanganui.
- Chorus operates in the remaining UFB areas which cover 1.3 million homes and businesses across 350 communities. It is the largest of the four UFB partners.

3 Commerce Commission analysis of June 2021 and June 2022 Crown Infrastructure Partners Quarterly Connectivity Updates available at <https://www.crowninfrastructure.govt.nz/about/publications/>

4 Beehive “Govt completes delivery of Ultra-Fast Broadband programme” (14 December 2022) – see <https://www.beehive.govt.nz/release/govt-completes-delivery-ultra-fast-broadband-programme>

5 Crown Infrastructure Partners “Quarterly Connectivity Update – 30 June 2022” – See <https://www.crowninfrastructure.govt.nz/wp-content/uploads/CIP-Connectivity-Quarterly-Report-June-2022.pdf>

## 4G and 5G Wireless Broadband

We estimate that, as at June 2022, there were approximately 291,000 wireless broadband connections provided over mobile networks across New Zealand (urban and rural) – 99% of these connections were 4G, with the remainder over 5G networks.

2degrees launched its 5G network in February 2022 and offers wireless broadband in parts of Auckland, Wellington and Christchurch.<sup>6,7</sup> Vodafone and Spark, launched their 5G networks in late 2019 and have continued to expand their 5G coverage in the last year.<sup>8,9</sup> Both companies are offering 5G wireless broadband in parts of major centres (including Auckland, Wellington, Christchurch and Tauranga) and regional towns such as Gore.

We expect that the coverage of 5G wireless broadband will continue to expand over the next few years following the allocation of long-term spectrum rights.

Structurally, the New Zealand market allows for greater levels of wireless broadband than many other countries due to lower population densities, which result in a higher MHz to subscriber ratio.

Wireless broadband (also known as fixed wireless) can be provided over various types of networks including mobile, WiMAX and satellite – WiMAX and satellite are discussed in the rural section.

In the mobile case, wireless broadband uses much of the same infrastructure and spectrum as mobile call, text and data services. In most cases, wireless broadband is restricted to a set location and is delivered via a router.

The wireless broadband coverage offered by mobile networks is based on the type and amount of spectrum the network operator has acquired as well as the number and position of sites (towers and masts) hosting equipment. The number of people potentially using a site at any one time is an important consideration for these operators.

In New Zealand, there are three national mobile networks operated by 2degrees, Spark and Vodafone. All three of these mobile network operators (**MNOs**) offer wireless broadband using their 4G and 5G networks.

Wireless broadband coverage differs from other 4G and 5G services. The primary reason for the coverage difference is that wireless broadband requires and uses significantly more network capacity than other mobile services (such as voice and text).

6 NZ Herald “2degrees launches 5G – but with no iPhone support, yet” (28 February 2022) see <https://www.nzherald.co.nz/business/2degrees-launches-5g-but-with-no-iphone-support-yet/BLI47GPMUSRJUTT2PKQTQ2VBXQ/>

7 2degrees “13 new 5G coverage areas launched” (11 July 2022) see <https://www.2degrees.nz/media-releases/13-new-5g-coverage-areas-launched>

8 Stuff “Vodafone turns on 5G mobile service in main centres, with \$10 surcharge coming” (10 December 2019) – see <https://www.stuff.co.nz/business/118056995/vodafone-turns-on-5g-mobile-service-in-main-centres-with-10-surcharge-coming>

9 Spark “Spark switches on first 5G wireless broadband in New Zealand” (26 September 2019) – see [https://www.sparknz.co.nz/news/Spark\\_switches\\_on\\_5G\\_wireless\\_broadband.html](https://www.sparknz.co.nz/news/Spark_switches_on_5G_wireless_broadband.html)



## Copper

Chorus is able to withdraw copper in areas where the Commission has declared that fibre services are available subject to the minimum requirements set out in the Copper Withdrawal Code (CWC).<sup>10,11</sup>

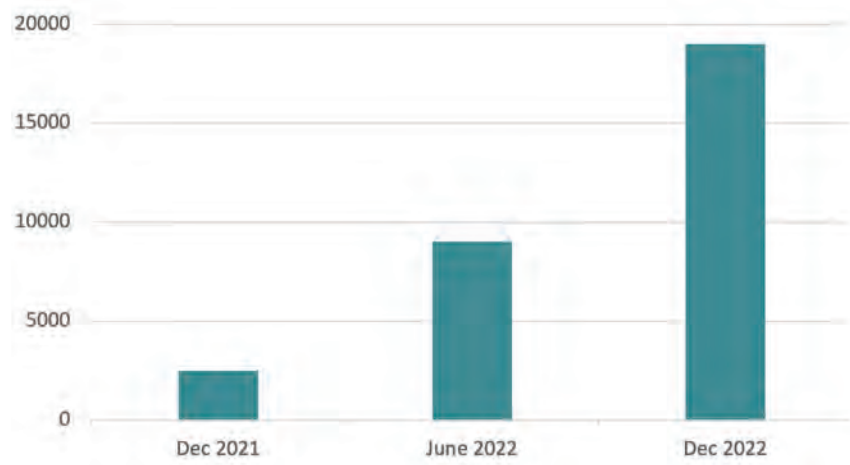
Under the CWC, Chorus is required to follow a prescribed notification process with affected consumers prior to ceasing copper services. Figure 1 shows the cumulative number of initial notices issued by Chorus in the period to 31 December 2022.

Chorus operates the copper network across New Zealand, which at its peak covered 98% of the population. The copper network remains largely ubiquitous, although this is changing in urban parts of New Zealand.

The copper network supports voice and broadband (ADSL and VDSL) services.

Figure 1: Initial notices issued under the Copper Withdrawal Code (cumulative)

Source: Chorus<sup>12</sup>



10 The Copper Withdrawal Code and CWC – Decisions and Reasons Paper can be found at <https://comcom.govt.nz/regulated-industries/telecommunications/projects/copper-withdrawal-code?target=documents&root=210534>

11 A map of specified fibre areas declared by the Commission can be found at <https://comcom.govt.nz/regulated-industries/telecommunications/regulated-services/consumer-protections-for-copper-withdrawal/map-of-specified-fibre-areas>

12 Chorus “2023 half year results – investor presentation” (20 February 2023), slide 27 – see <https://company.chorus.co.nz/reports>

In its half year results, reporting up to 31 December 2022, Chorus reported that of the approximately 19,000 notices issued, approximately 10,000 copper services (or 268 cabinets) for notified connections had ceased. This leaves 756 cabinets that have had notices issued, and 1,934 cabinets yet to be notified.<sup>13</sup>

Chorus has initially prioritised copper withdrawal in Chorus fibre areas. However, Chorus is beginning to trial copper withdrawal in non-Chorus fibre areas with first notices being issued in early 2023.<sup>14</sup> It is starting with 28 cabinets and around 100 copper lines, with the planned withdrawal date being in October 2023.

Source: Chorus<sup>15</sup>

## HFC

We are not aware of any changes to HFC network coverage in the last year.

Hybrid fibre-coaxial (HFC) is a broadband network that combines fibre and coaxial cable (copper). HFC networks were commonly employed by cable television operators from the early 1990s.

The HFC network in New Zealand is owned by Vodafone and was built in parts of Wellington, Kapiti Coast, and Christchurch (see coverage section below).

<sup>13</sup> Ibid.

<sup>14</sup> <https://sp.chorus.co.nz/product-update/copper-withdrawal-programme-update-0>

<sup>15</sup> An interactive map of addresses impacted by the withdrawal can be found at: <https://www.chorus.co.nz/copper-withdrawal>

## Coverage

The following coverage maps of Auckland, Hamilton, Wellington, Christchurch and Dunedin illustrate some of the current urban/rural network boundaries. The copper network within these fibre boundaries will ultimately be withdrawn by Chorus. In the vast majority of cases, mobile coverage overlaps fibre coverage, but this is not always the case.

Broadbandmap.nz is currently the best place to view where different telecommunications technologies are available across New Zealand – fibre, copper (ADSL and VDSL), cable (HFC), wireless (4G and WiMAX broadband). The information is collected and presented independently by Internet New Zealand from a range of providers.

Wireless broadband coverage provided by MNOs is based on technical models, which means actual service availability may differ to what is displayed on the coverage maps.

## Auckland

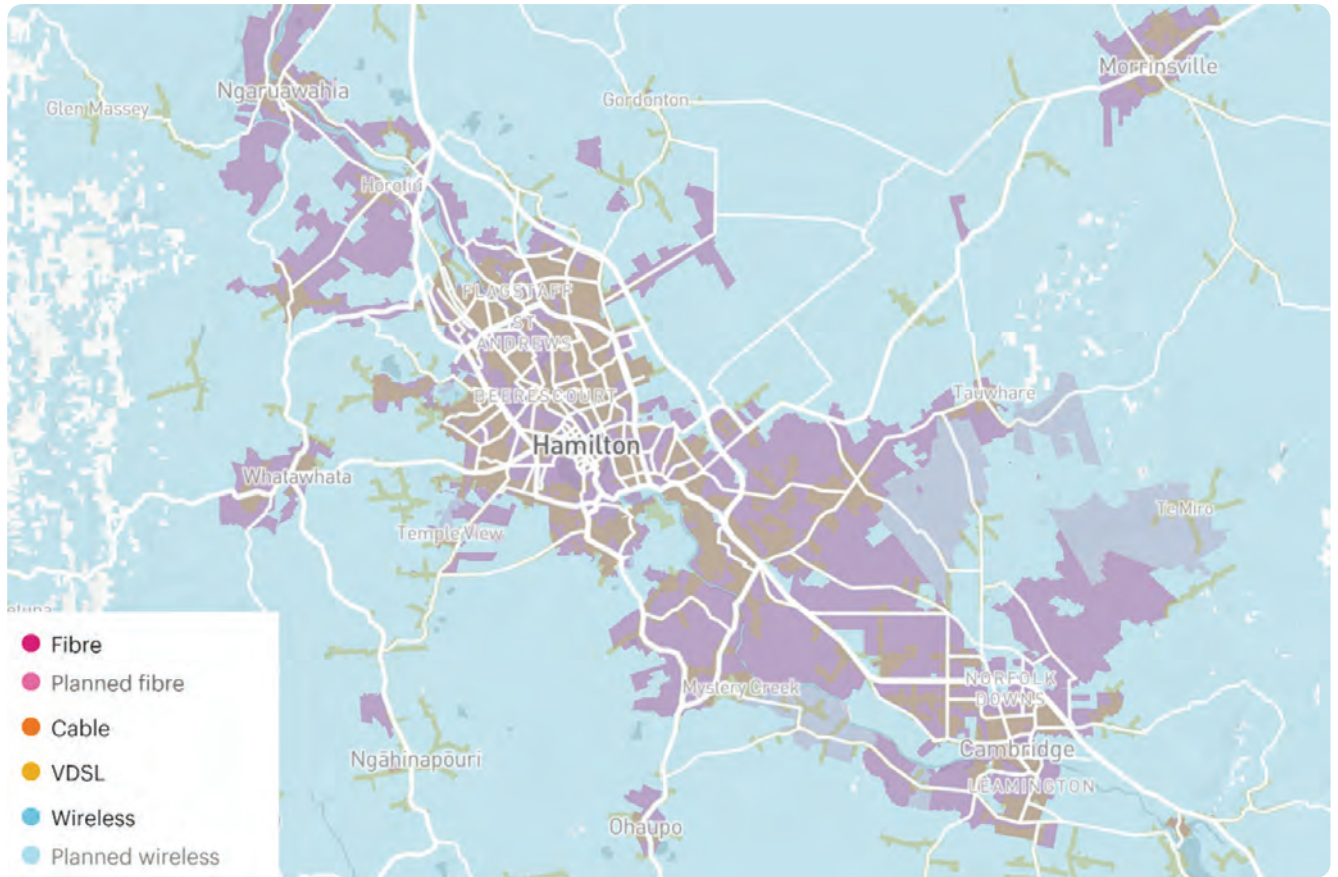
Chorus built and operates the UFB network in the Auckland region. As New Zealand’s most populous city, Auckland has extensive fibre coverage.



Source: Broadbandmap.nz

## Hamilton

Tuatahi built and operates the UFB network in the Waikato, including Hamilton city.

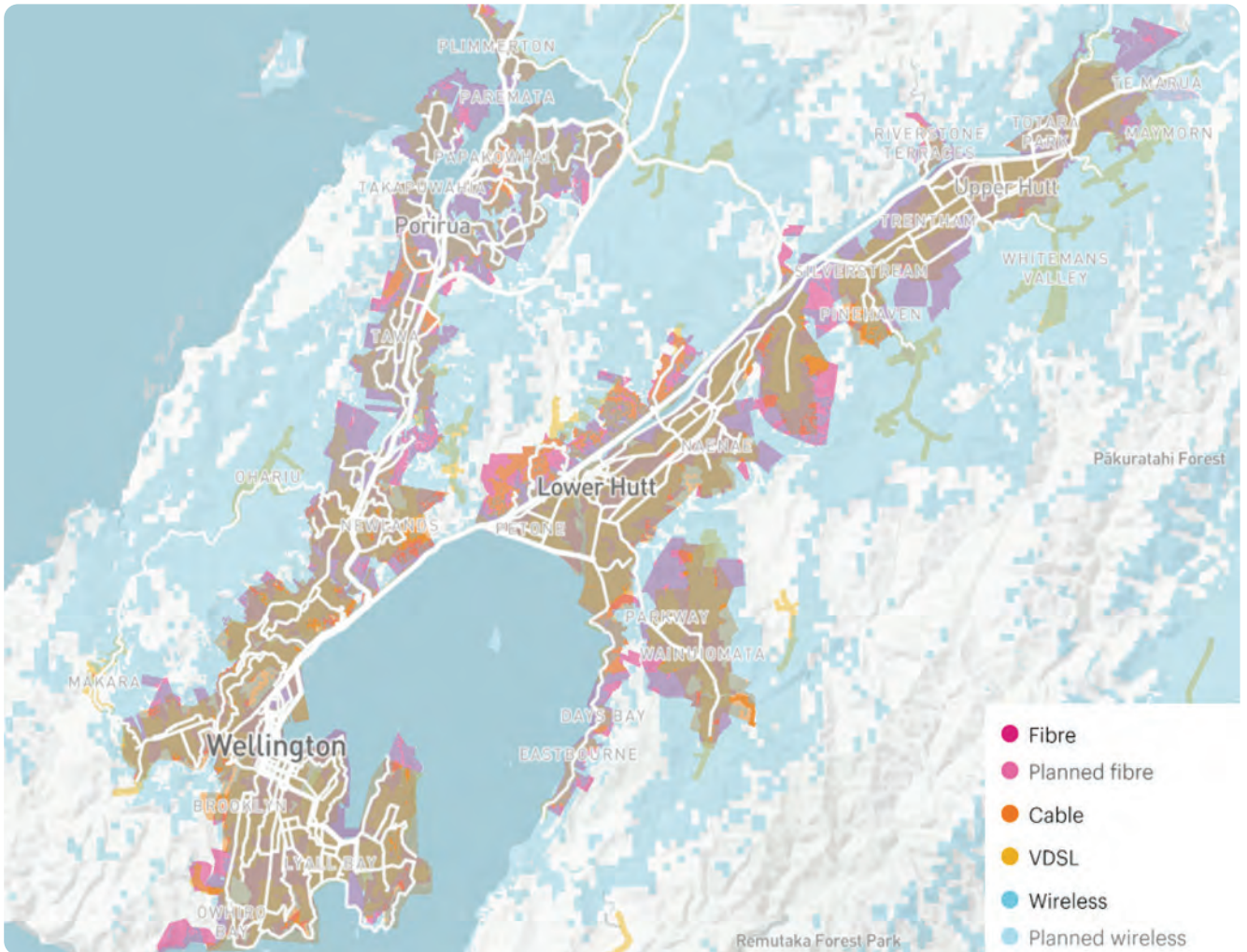


Source: Broadbandmap.nz



## Wellington

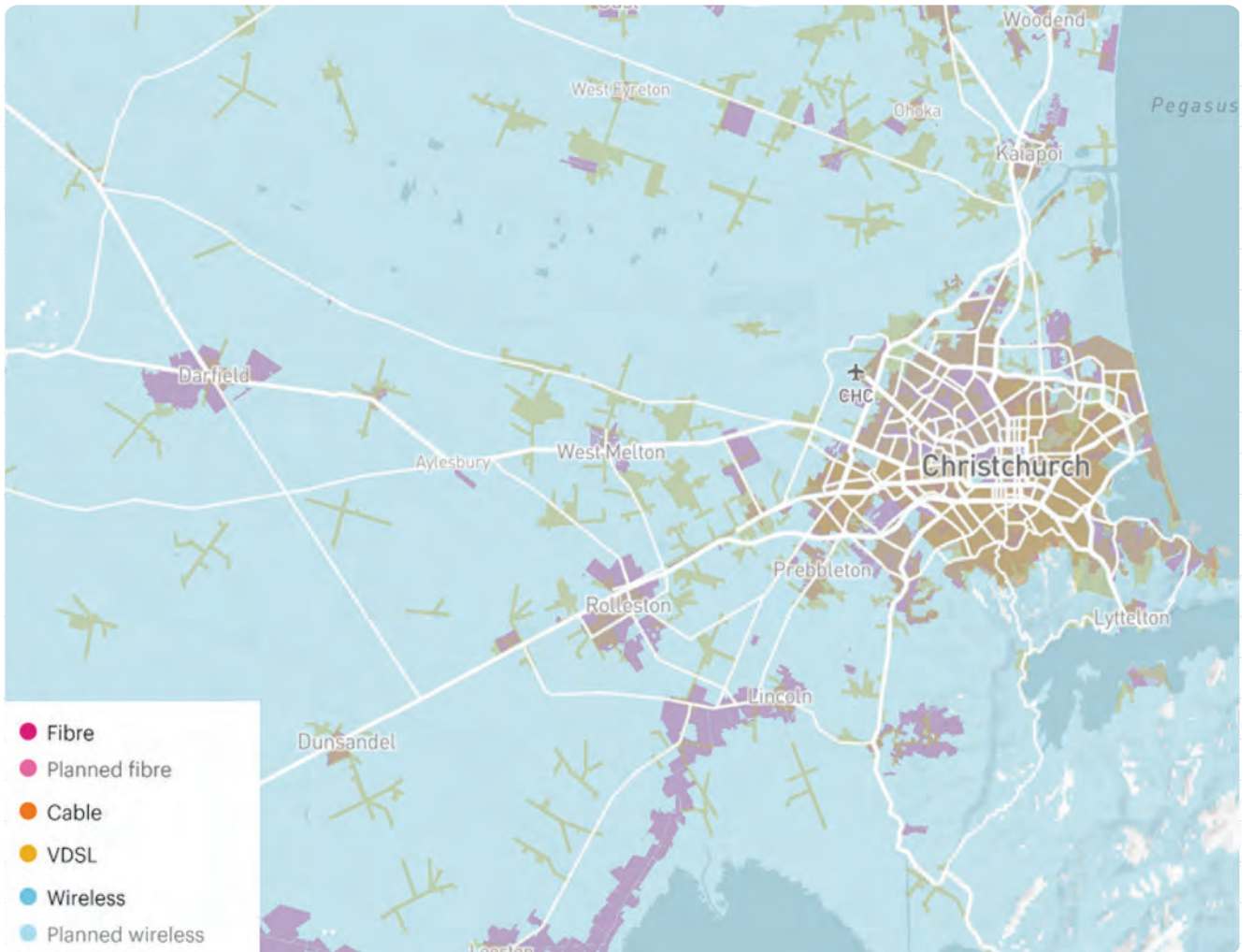
Chorus built and operates the UFB network in the Wellington region. Vodafone’s HFC network (shown in orange) largely overlaps with the fibre footprint, with only a few exceptions where HFC is available but fibre is not.



Source: Broadbandmap.nz

## Christchurch

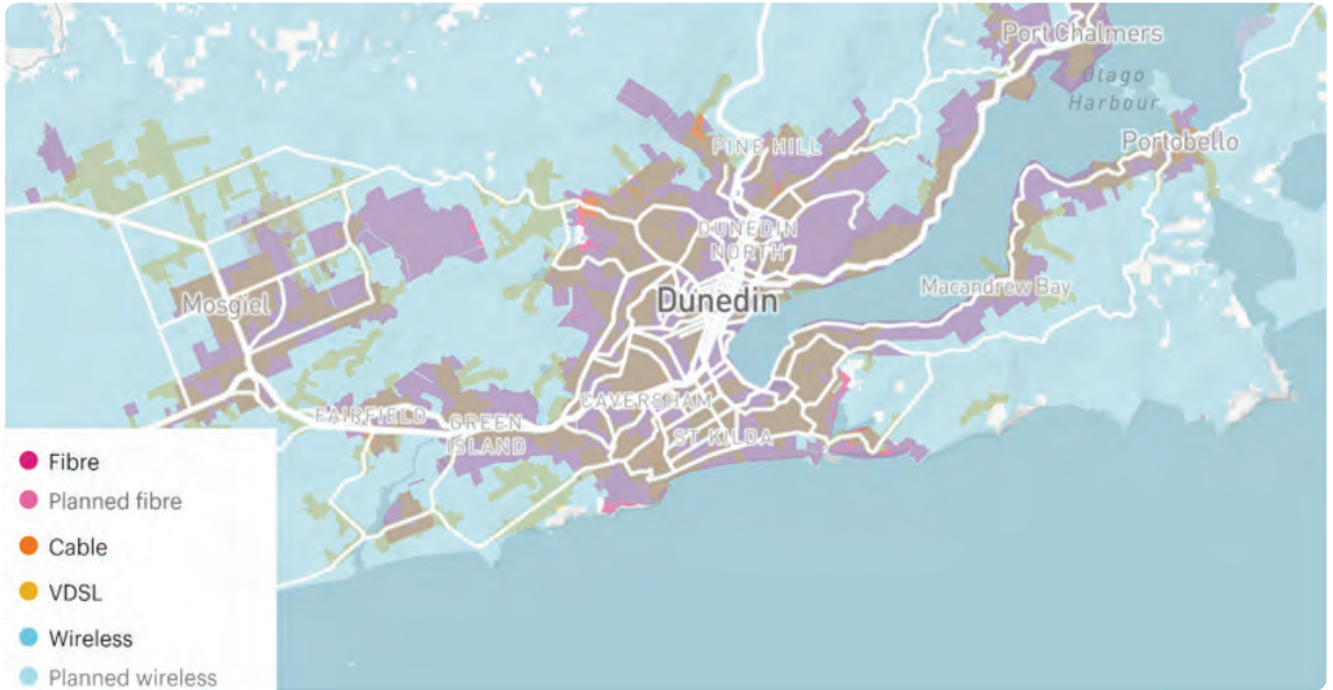
Enable built and operates the UFB network in the wider Christchurch area. Vodafone's HFC network (shown in orange) largely overlaps with the fibre footprint, with only a few neighbourhoods covered by HFC but not by fibre.



Source: [Broadbandmap.nz](http://Broadbandmap.nz)

## Dunedin

Chorus built and operates the UFB network in Dunedin.



Source: [Broadbandmap.nz](http://Broadbandmap.nz)

## The wholesale market plays an important role in shaping outcomes at the retail level for consumers. Regulation usually applies where competition by itself is insufficient to result in access to infrastructure with natural monopoly characteristics.

The wholesale market continues to play an important part in the overall market structure of telecommunications in New Zealand. Regulatory obligations to provide key inputs for connectivity in Kiwi homes and businesses have transformed the retail market.

### 2022 Highlights

- In December 2021, all local fibre companies (LFCs) apart from Northpower increased the speed for consumers on 100Mbps fibre plans to 300Mbps free of charge. This has led to the 300Mbps fibre plan becoming the new dominant speed tier, and as at 30 June 2022, 300Mbps plans made up 48% of all UFB fibre plans.
- By connections, the 1Gbps fibre plan is the fastest -growing fibre plan, with Chorus reporting that approximately 30% of new connections added to its network are 1Gbps connections.
- In 2022, copper broadband connections in urban areas fell 42% to 98,000, with a total of 72,000 broadband consumers leaving the copper network.

The fibre and copper access networks in New Zealand both have natural monopoly characteristics. Accordingly, there is regulated wholesale access for both networks.

Typically, the highest-volume wholesale services are those used to serve the residential broadband market and comprise the connectivity (physical cabling) from the home back to a point in the network that houses electronics. These services are referred to as bitstream, and they are offered on both fibre and copper networks in New Zealand.

A small wholesale market exists within the mobile sector that supports wireless broadband access. This part of the market operates on commercial terms. (Wholesaling of call, text and mobile data services is covered in the mobile chapter.)



## Wholesale fibre bitstream connections

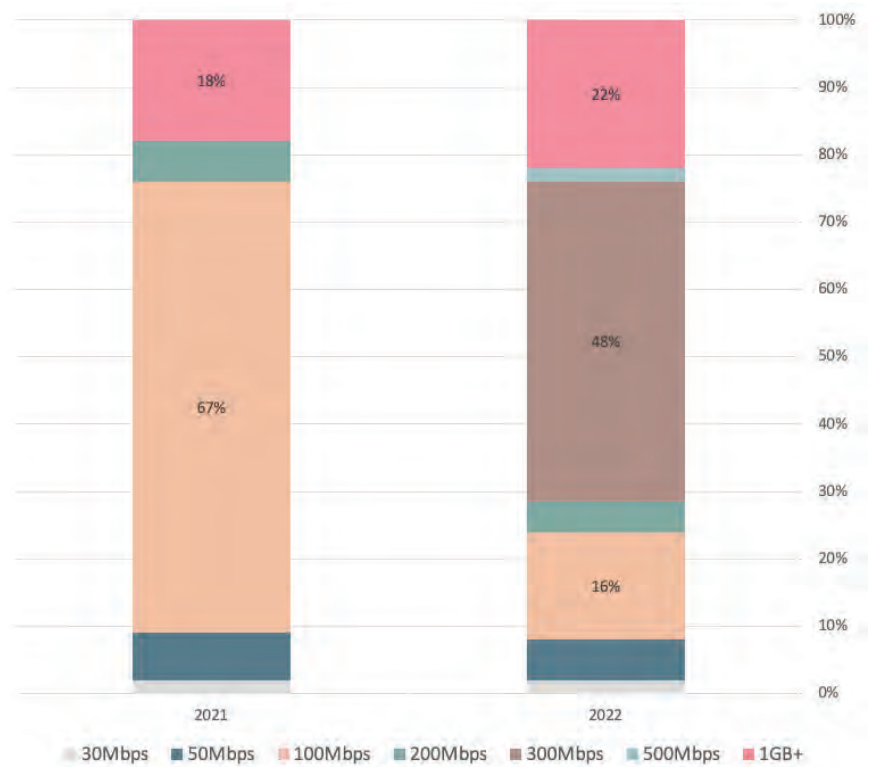
Figure 2 below shows the speed composition of UFB connections across all four LFCs and includes both residential and business connections. The percentage of connections on different speed tiers depends on a range of factors, including wholesale offerings, retail service provider (RSP) take up-of these offers and consumer preferences.

Figure 2: Speed composition of UFB connections

Source: Commerce Commission analysis of CIP data<sup>16</sup>

A requirement of the fibre networks built as part of UFB is that they are operated as wholesale only. This means Chorus, Northpower, Tuatahi and Enable must sell their fibre through RSPs.

Chorus is the largest fibre wholesaler and provides approximately 75% of UFB fibre connections. Northpower is the smallest fibre wholesaler and holds around 2% of UFB connections. The remaining UFB connections are provided by Enable and Tuatahi.



16 Commerce Commission analysis of June 2021 and June 2022 Crown Infrastructure Partners Quarterly Connectivity Updates available at: <https://www.crowninfrastructure.govt.nz/about/publications/>

## 100Mbps (the anchor service)

The Act requires Chorus to provide an anchor fibre service if one has been declared.<sup>17</sup> The purpose of the anchor service is to:

- ensure that voice and basic broadband services are available to end users at reasonable prices
- act as an appropriate anchor on the price and quality of other fibre services.

In September 2021, anchor services were declared.<sup>18</sup> The anchor broadband service is specified to provide a minimum download speed of 100Mbps and a minimum upload speed of 20Mbps.<sup>19</sup> At the time, the commercial 100Mbps product was the most common speed tier sold.

In December 2021, all LFCs apart from Northpower increased the speed for consumers on 100Mbps fibre plans to 300Mbps free of charge.<sup>20,21</sup> This change has seen the 100Mbps product reduce from 67% of UFB connections in June 2021 to 16% in June 2022.

Northpower subsequently revised its prices in July 2022, making the 300Mbps service cheaper than its 100Mbps service. As such, we have observed the proportion of fibre plans on 100Mbps continuing to fall, with 100Mbps plans only making up 6% of UFB connections in September 2022.<sup>22</sup>

Chorus continues to offer a 100Mbps wholesale product to the market consistent with its anchor service obligations.<sup>23</sup>

## 300Mbps

The 300Mbps plan has become the new dominant speed tier. As at 30 June 2022, 300Mbps plans made up 48% of all UFB fibre plans. The migration from 100Mbps to 300Mbps is even more prominent on the Chorus fibre network where 300Mbps plans now make up 68% of all fibre connections.<sup>24</sup>

Although Northpower did not originally participate in the speed increase in December 2021, its price updates in July 2022 show that it informally followed, reflecting pressure for consistent nationwide offers.

Despite the increase in speed, the 300Mbps plan is not as popular as the 100Mbps was due to the increasing uptake of the 1Gbps plan.

## 1Gbps

Uptake of the 1Gbps plan continues to grow, with Chorus reporting that approximately 30% of new connections added to its network are 1Gbps connections.<sup>25</sup>

In June 2021, 18% of UFB fibre connections were 1Gbps. One year on, this has grown to approximately 21% of UFB connections.<sup>26</sup>

17 Section 198(1) of the Telecommunications Act 2001 requires a regulated fibre service provider who is subject to price-quality regulation (Chorus) to provide an anchor service if an anchor service has been declared.

18 Via regulations made under section 227 of the Act. The Telecommunications (Regulated Fibre Services) Regulations 2021 can be found at <https://www.legislation.govt.nz/regulation/public/2021/0259/latest/whole.html>

19 Section 6(a) of Telecommunications (Regulated Fibre Services) Regulations 2021.

20 Stuff "Hundreds of thousands of homes should see broadband speeds triple" (1 December 2021) – see <https://www.stuff.co.nz/business/127150139/hundreds-of-thousands-of-homes-should-see-broadband-speeds-triple>

21 The speed change was not automatic for customers and required RSPs to adjust their router settings. Chorus "Chorus' future fibre portfolio – confirmed changes" (1 September 2021) – see <https://sp.chorus.co.nz/product-update/chorus-future-fibre-portfolio-confirmed-changes>

22 Crown Infrastructure Partners "Quarterly Connectivity Update – 30 June 2021" – see <https://www.crowninfrastructure.govt.nz/wp-content/uploads/CIP-Quarterly-Rep-Q2-June-2021-FINAL.pdf>

23 Chorus "New Anchor Bitstream Service" (17 November 2021) – see <https://sp.chorus.co.nz/product-update/new-anchor-bitstream-service>

24 Chorus FY22 Full Year Results "Investor presentation" slide 8 – see <https://company.chorus.co.nz/reports>

25 Ibid.

26 Crown Infrastructure Partners combines 1Gbps and hyperfibre connections in its latest reporting so we are unable to confirm the percentage of the market held by 1Gbps plans.

## Hyperfibre

Hyperfibre is a more recent fibre product, initially launched by Chorus in 2020.<sup>27</sup> Tuatahi followed later in 2020 while Enable launched hyperfibre in Christchurch central in July 2021.<sup>28</sup> Northpower began a trial of hyperfibre services in April 2022 for premises in Whangārei CBD.

2Gbps and 4Gbps hyperfibre services are available to 75% of New Zealanders. However, 8Gbps hyperfibre services are only available in parts of Auckland and Wellington.<sup>29</sup>

We estimate that hyperfibre connections make up less than 1% of all UFB fibre connections, with Chorus reporting in 2022 that around 0.1% of its fibre connections were hyperfibre.<sup>30</sup>

## Other fibre plans

In June 2022, other fibre plans made up the remaining 15% of connections (Fibre 500, 200, 50 and 30). This is the same as last year.

## Wholesale unbundled fibre connections

Since 1 January 2020, LFCs have been obligated under their Fibre Deeds to offer a point-to-multipoint layer 1 fibre access service on their UFB1 networks, also referred to as an unbundled fibre service.<sup>31</sup>

Unbundled fibre is not yet used commercially by RSPs in the provision of retail broadband services or any other retail offerings.

27 Chorus "Queenstown, Wanaka, Cromwell and Wakatipu first to experience Chorus' Hyperfibre broadband" (20 February 2020) see <https://company.chorus.co.nz/queenstown-wanaka-cromwell-and-wakatipu-first-experience-chorus-hyperfibre-broadband>

28 Enable "Annual Report 2022" – see [https://www.enable.net.nz/assets/Annual-reports/2022-Enable\\_Annual-Report.pdf](https://www.enable.net.nz/assets/Annual-reports/2022-Enable_Annual-Report.pdf)

29 <https://hyperfibre.co.nz/hyperfibre-rollout>

30 Chorus FY22 Full Year Results "Investor presentation" slide 8 – see <https://company.chorus.co.nz/reports>

31 Part 4AA of the Telecommunications Act 2001 required the LFCs to give Deeds of Open Access Undertakings (known as the Fibre Deeds) in relation to the supply of wholesale telecommunications services using fibre networks constructed with Crown investment funding as part of the UFB initiative.

## Wholesale copper bitstream connections

In the year to 30 June 2022, copper broadband connections in urban areas fell 42% to 98,000, meaning that a total of 72,000 broadband consumers left the copper network.<sup>32</sup> The rate of decline was higher in Chorus fibre areas where copper broadband connections fell 50% to 63,000 compared to copper in fibre areas operated by other LFCs, which fell 22% to 35,000.<sup>33</sup>

Over the relevant period, the decline in copper broadband has outstripped the number of copper lines withdrawn by Chorus, suggesting that copper withdrawal is only currently playing a partial role in this decrease.

The larger factor seems to have been commercial decisions made by some RSPs to stop selling copper services ahead of withdrawal and consumer preferences for faster speeds or cheaper prices on other technologies.

The copper broadband offered in urban areas has a large wholesale component provided by Chorus, which continues to operate the copper network nationwide.

## Wholesale wireless broadband connections provided by MNOs

In urban areas of New Zealand, wireless broadband plans are wholesaled by MNOs on commercial terms through mobile virtual network operator (MVNO) agreements. However, not all MVNO agreements include wireless broadband services (discussed further in our mobile chapter). Wireless broadband is wholesaled in rural areas under different arrangements to MVNO agreements (discussed further in our rural chapter).

In 2022, 17,000 wireless broadband connections were wholesaled in urban and rural areas.<sup>34</sup> This is a 17% increase on 2021.

RSPs that resell 4G wireless broadband include Trustpower, which has an MVNO agreement with Spark, and Contact Energy, which launched a wireless broadband service pilot in 2022.<sup>35</sup>

32 Commerce Commission analysis of Chorus annual reports available at <https://company.chorus.co.nz/reports>

33 Ibid.

34 Annual industry questionnaire.

35 Contact Energy "2022 Full Year Results – Integrated Report" (15 August 2022) – see <https://contact.co.nz/aboutus/investor-centre/report>

## Retail telecommunications markets are where combinations of infrastructure and wholesale offers are packaged up by competing firms/brands to be marketed to consumers. The structure of the retail market has the most direct effect in shaping the experience of consumers.

Retail market structure has been significantly shaped by wholesale access regulation, the government's UFB initiative, and the three vertically integrated MNOs enhancing their networks to offer connectivity to Kiwi homes and businesses.

Throughout this section, we focus on the retail brands with broadband market shares above 3%. We use the term 'major RSPs' to refer to them collectively (see Table 1). We recognise the important role of niche RSPs (below 3% share) serving different market segments who respond to our annual industry questionnaire and contribute to our overall view of the retail market.

### 2022 Highlights

- The market share held by the largest retail telecommunications companies has increased to 84% this year, up from 79% in 2021, following the merger of 2degrees and Vocus.
- Residential electricity-broadband bundles increased by 16% in 2022.
- All major RSPs, except Orcon (a sub-brand of 2degrees), now offer a wireless broadband service.
- No major RSPs offer copper to new consumers in urban areas.
- 70% of urban retail connections are fibre, with all major RSPs offering fibre.

The retail telecommunications market in New Zealand has over 100 RSPs – characterised by a few large operators and a long tail of RSPs with smaller customer bases. This market structure for retail telecommunications is common across the world. Larger providers in this setting are either legacy incumbents or have started small and been able to invest, compete and grow.

At a high level, the two distinct types of RSPs operating in the urban broadband market are:

1. vertically integrated players who can offer fixed wireless services using their own mobile networks as well as retailing wholesale offerings from Chorus/LFCs.
2. players without networks who buy wholesale inputs from Chorus/LFCs – an increasing number of players in this category are electricity retailers.

Table 1: Major urban RSPs

Company	Note	Own network	Main brands	Offer electricity
Spark	Incumbent operator	Yes – mobile	Spark, Skinny	No
Vodafone		Yes – mobile and HFC	Vodafone	No
2degrees	Merged with Vocus in 2022	Yes – mobile	2degrees, Orcon, Slingshot	Yes
Trustpower	Retail business bought by Mercury in 2022	No	Trustpower	Yes
Contact Energy		No	Contact Energy	Yes

## Retail Market Share

### Market concentration

Market concentration, or the extent to which the distribution of the market across firms is limited to relatively few firms, is an important structural characteristic of a market.

We estimate that the fixed broadband market is moderately concentrated with an HHI of approximately 2,235.<sup>36</sup> This reflects the total market situation – connections in both urban and rural areas.

Figure 3 shows that the concentration ratio of the largest four retailers (including their various sub-brands) decreased in recent years before increasing in 2022 due to the merger of Vocus and 2degrees.<sup>37</sup>

There are several ways to look at market concentration. We have chosen to use both a Herfindal – Hirschman Index (HHI) and a simpler market concentration ratio.

HHI analyses market shares of each firm in a market to determine a value of market concentration – an HHI between 1,500 and 2,500 indicates moderate concentration, whereas values above this indicate high concentration.

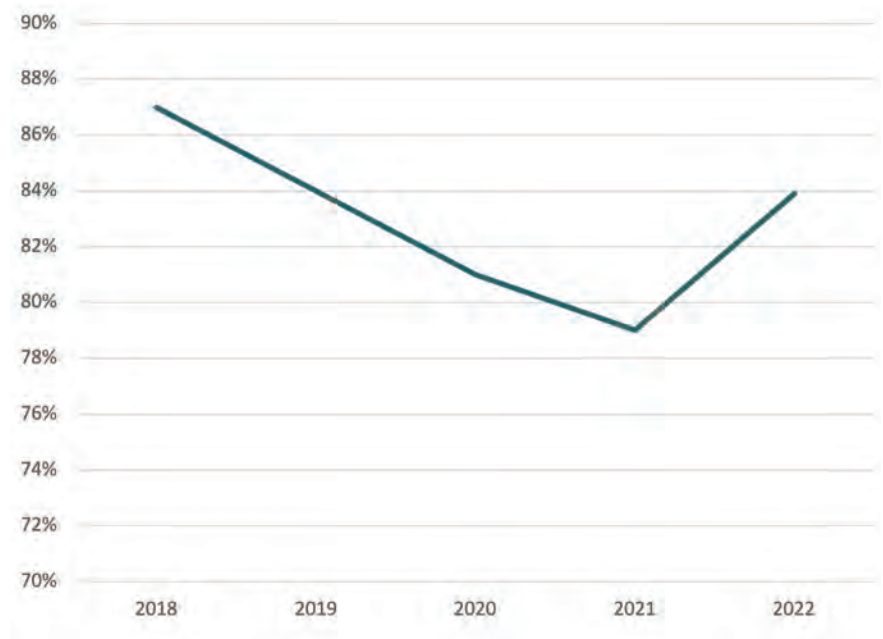
The market concentration ratio looks at the market shares of the top four providers relative to the total market share.

<sup>36</sup> This figure was calculated using the total broadband subscribers in New Zealand, the known market shares of 18 RSPs, and an assumption that the remaining 4% of the market is evenly spread among 30 other RSPs. This assumption was used as there are a large number of small RSPs whose market shares are unknown. Sensitivity analysis shows that this assumption does not materially affect the HHI value.

<sup>37</sup> The top four retailers in 2022 are Spark (including its Skinny and Bigpipe brands), Vodafone, 2degrees (including its Slingshot, Orcon, Vocus and Flip brands), and Trustpower

**Figure 3: Market share of top four by connections**

Source: Commission analysis of industry questionnaire, CIP and Chorus data



In 2021, we estimated that the top four held 79% of the fixed broadband market.

As a result of the merger of Vocus and 2degrees on 1 June 2022 (the third and fourth-largest retailers respectively), the combined market share by connections of the top four has increased to 84% in 2022.<sup>38</sup>

When granting clearance for the merger in March 2022, the Commission noted that “the evidence before us indicates that the merged entity will continue to face strong competition from existing competitors, including Spark and Vodafone”.<sup>39</sup>

Aside from the merger, the share of connections held by smaller RSPs has increased slightly since 2021, from 15% of connections in 2021 to 16% in 2022.

38 Vocus’s parent companies Macquarie Asset Management and Aware Super purchased 2degrees in November 2021. The merged company is trading as 2degrees.

39 Commerce Commission “Commission grants clearance for Vocus/2degrees merger” (15 March 2022) – see <https://comcom.govt.nz/news-and-media/media-releases/2022/commission-grants-clearance-for-vocus2degrees-merger>

## Competition between the top four

Having looked at the top four relative to the total market, it is important to also understand the level of rivalry or competition that exists within the top four.

To do this, we have looked across the market shares of the top four to identify whether any volatility exists over time.

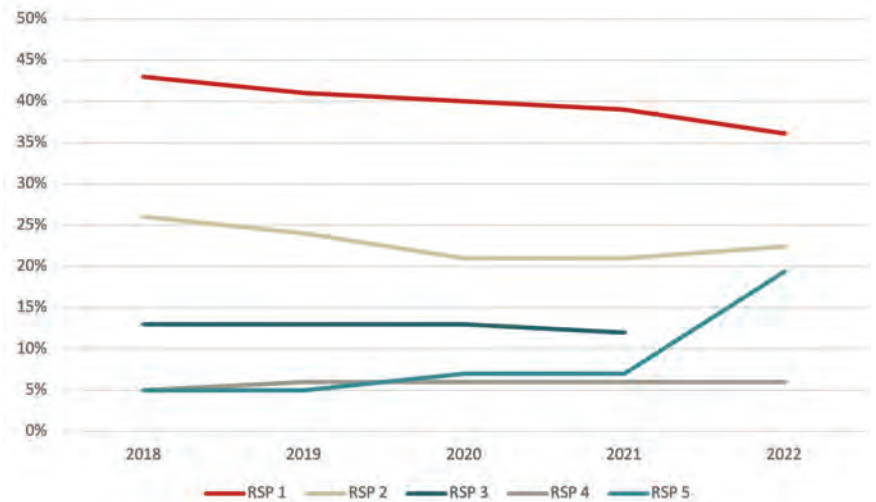
At a high level, we would interpret volatility between providers' market shares as an indicator of competition.

The impact of the merger on market concentration has already been discussed, but Figure 4 illustrates the significant narrowing of the gap between the second and third-

largest broadband providers. This, coupled with the gradual erosion of market share from the largest broadband provider, indicates competitive tension and consumer switching in the market and the potential for further shifts in the coming years.

*Figure 4: Top four broadband market shares over time*

*Source: Commission analysis of industry questionnaire, CIP and Chorus data*





## Retail Offers

RSP offers in the retail telecommunications market are made up of several key aspects.

- What network infrastructure is available (either through ownership or wholesale regulated/commercial access terms). In urban areas, this covers fibre, copper, 4G wireless broadband, and HFC.
- What service performance characteristics are offered (such as download speeds and data caps).
- What, if any, service add-ons will be included in the offer (such as subscription services or electricity).

The highest retail speed achievable by a 1Gbps wholesale product is around 940Mbps.

As such these plans are typically marketed under other names such as Fibre Max, Gigantic Fibre and Fibre Pro.

In the retail section of this report, we will refer to the product as Fibre Max.

## Network

As shown in Table 2 below, all major RSPs offer fibre. All but Orcon (which is a sub-brand of 2degrees) offer a 4G wireless broadband service. No major RSPs offer copper to new consumers in urban areas and Vodafone is the only RSP offering HFC cable services.

Table 2: Technology offerings by major RSPs in urban areas

RSP	Fibre				4G wireless broadband	Copper	HFC cable
	50Mbps	300Mbps	Fibre Max	Hyperfibre			
Spark	✓	✓	✓		✓		
Skinny		✓	✓		✓		
Vodafone	✓	✓	✓		✓		✓
Orcon		✓	✓	✓			
Slingshot		✓	✓		✓		
2degrees		✓	✓		✓		
Trustpower		✓	✓		✓		
Contact Energy		✓	✓		✓		

Source: RSP websites (as at January 2023)

## Service Characteristics – Speed

As shown in Table 2 above, the 300Mbps and 1Gbps plans are the core residential fibre plans retailed by all major RSPs.

No major RSPs are currently advertising 30Mbps or 100Mbps plans (the anchor service). 2018 is the last year we saw a major RSP offering the 30Mbps plan.

Spark and Vodafone currently prefer to serve the lower-cost, lower-speed segment of the market using the 50Mbps fibre plan alongside their own wireless broadband offers.

Orcon is the only major RSP offering hyperfibre plans. It offers 2Gbps, 4Gbps and 8Gbps hyperfibre plans.

## Service Characteristics - Data caps

In 2022, according to our industry questionnaire, 84% of all residential broadband connections were unlimited or what is called uncapped.

Data caps are used to manage user behaviour in locations where network capacity is scarce.

Our annual industry questionnaire does not currently split between urban and rural, but we anticipate that the majority of the capped plans are in rural areas. Capped plans in urban areas are primarily 4G wireless broadband plans. However, Slingshot does offer one capped fibre plan.

As shown in Table 3 below, urban wireless broadband data caps range from 40GB up to 1,000GB. Most RSPs offer an unlimited usage plan, apart from Trustpower.

*Table 3: Current residential urban wireless broadband offers*

RSP	Data caps options	Unlimited plan available?
Spark	40GB, 120GB	✓
Skinny	60GB, 120GB	✓
Vodafone	60GB, 300GB	✓
2degrees	300GB	✓
Trustpower	120GB, 300GB, 1000GB	
Contact	300GB	✓

Source: RSP websites (as at November 2022)

## Service Add-ons

Bundling of telecommunications services together (fixed and mobile services) or bundling of telecommunications services with non-telecommunications services (video streaming subscription, electricity) is promoted by providers as offering single billing convenience and cheaper prices.

In the past year, take-up of broadband/electricity bundles by residential consumers has increased by 16% (up to 243,000 consumers). Electricity bundles are largely offered by electricity retailers who have entered the broadband market (Contact Energy, Nova Energy, Trustpower/Mercury) but Vocus, a broadband retailer, entered the electricity market in 2017, allowing it to offer electricity bundles.<sup>40,41</sup>

In addition, bundling appears to be more prevalent in urban areas as fibre-focused RSPs often have a large proportion of their consumers on bundled plans.

As noted in the Commission's Improving Retail Service Quality: Product Disclosure – Emerging Views Paper bundled offers do not always result in the savings that provider marketing might suggest.

40 Following the merger of 2degrees and Vocus, 2degrees has also entered the electricity market. 2degrees "2degrees enters power market" (3 November 2022) – see [https://www.2degrees.nz/media-releases/2degrees-enters-power-market?gclid=EAlalQobChMin5D5S\\_Su\\_AIVzSMrCh2eSwDQEAAAYASAAEgJpivD\\_BwE](https://www.2degrees.nz/media-releases/2degrees-enters-power-market?gclid=EAlalQobChMin5D5S_Su_AIVzSMrCh2eSwDQEAAAYASAAEgJpivD_BwE)

41 We are looking into ways of increasing transparency of pricing in these bundles for consumers as part of our retail service quality work.

## Retail offer share

**Figure 5: Estimated urban broadband connection technology**

Source: Commission analysis of CIP, Chorus and industry questionnaire<sup>42</sup>

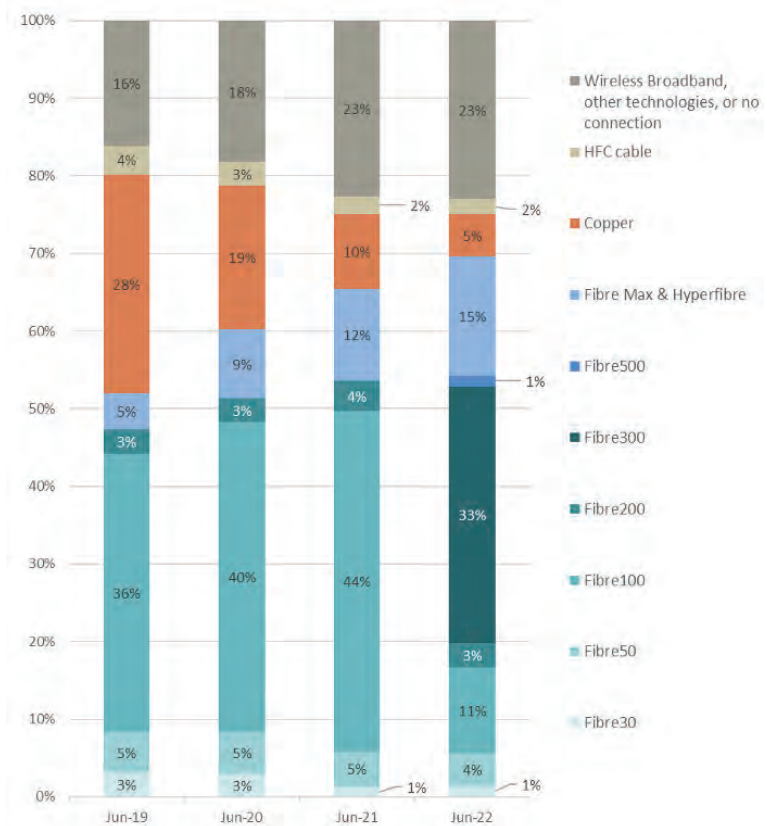
Figure 5 shows our estimated split of technology among urban homes and businesses.

As at 30 June 2022, 70% of urban homes and businesses were connected using fibre, with the most popular plan, Fibre 300, being used by one-third of all urban homes and businesses.<sup>43</sup>

2% of urban homes and businesses were connected using HFC cable.<sup>44</sup> In the past year, HFC connections have fallen 14% to 36,000.

23% of urban homes and businesses either use a wireless technology to connect or have no broadband connection.

We cannot currently confirm the percentage of urban homes and businesses being served by wireless broadband as our annual industry questionnaire does not yet split between urban and rural. However, we do know that, across urban and rural New Zealand, wireless broadband offered by MNOs provides connectivity to 16% of Kiwi homes and businesses – 99% of



these connections are 4G wireless broadband with the remaining 1% 5G wireless broadband.

Some homes and businesses will not have a fixed broadband connection but will instead use their phone's mobile data allowance to access the internet. While there has been an increase in unlimited mobile plans in recent years, the speed caps/fair usage restrictions on these plans mean that they are only a viable alternative for people with low usage needs.

We are currently unaware of any data on the number of homes and businesses that are mobile-only in New Zealand. We do know that 16% of Australians were mobile-only for internet in 2020.<sup>45</sup>

The remaining urban homes and businesses will not have an internet connection of any kind. The World Internet Project New Zealand found that, in 2021, 6% of people in urban areas do not use the internet.<sup>46</sup> Some people in this category may have a connection but do not use it.

<sup>42</sup> Total urban broadband connections are assumed to be the number of premises where fibre is available (as reported by CIP). Fibre connections are based on CIP reports, copper connections are based on Chorus public reporting and HFC connections are based on Vodafone's industry questionnaire response. Unaccounted connections are assumed to be 4G wireless broadband connections, other technologies, or premises where there is no connection.

<sup>43</sup> Crown Infrastructure Partners "Quarterly Connectivity Update – 30 June 2022" see <https://www.crowninfrastructure.govt.nz/wp-content/uploads/CIP-Connectivity-Quarterly-Report-June-2022.pdf>

<sup>44</sup> Industry questionnaire.

<sup>45</sup> ACMA "Mobile-only Australia: Living without a fixed line at home" (December 2020) – see <https://www.acma.gov.au/publications/2020-12/report/mobile-only-australia-living-without-fixed-line-home>

<sup>46</sup> New Zealand Work Research Institute "The World Internet Project New Zealand 2021" – see [https://workresearch.aut.ac.nz/\\_data/assets/pdf\\_file/0007/571129/WIP-2021-Final\\_Nov.pdf](https://workresearch.aut.ac.nz/_data/assets/pdf_file/0007/571129/WIP-2021-Final_Nov.pdf)

## Consumers of telecommunications are presented with a wide range of retail offers that are products of the underlying market structure – the network infrastructure, its capabilities, ownership and regulatory settings.

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Whether consumers understand and act on these offers is a product of the information available to them, including through marketing, and their innate preferences and behaviours.

### 2022 Highlights

- Two new industry codes to improve marketing of broadband services came into force in April 2022.
- Initial survey results show that 41% of urban broadband consumers have been with their provider for more than 5 years.

### Understanding

The dynamic of wholesale-only LFCs providing fibre, and vertically integrated MNOs offering retail 4G wireless broadband services, has impacted the retail offers presented to consumers. LFCs are incentivised to get RSPs to move their consumers towards higher-speed plans (such as Fibre Max) regardless of whether consumers require these speeds for their needs. Moving end users to Fibre Max increases LFCs revenue and reduces the perceived substitutability of their services with 4G wireless broadband.

On the other hand, MNOs are incentivised to promote their wireless broadband products to minimise wholesale input costs and fully utilise their mobile networks. However, due to the technical capabilities of wireless broadband, the latency and speeds experienced on 4G plans may not be suitable for some consumers' needs.

## Industry codes

With the ongoing shift from copper to alternative services (including fibre and 4G wireless broadband), the importance of providers appropriately marketing and disclosing information about their offerings was identified as an area of concern by the Commission. In November 2021, the Commission issued guidelines under section 234 of the Act to the industry aiming to ensure that consumers:<sup>47</sup>

- have sufficient notice of any change to their copper service
- know about the full range of alternative services available to them (not just what their providers want them to buy)
- know how alternative services are likely to perform.

In response to the guidelines, the New Zealand Telecommunications Forum (TCF) created two industry retail service quality codes – the TCF Copper and PSTN Transition Code and the TCF Broadband Marketing Code.<sup>48</sup>

The Copper and PSTN Transition Code sets out requirements that RSPs must meet when their consumers are transitioning away from copper-based services due to copper withdrawal, public switched telephone network (PSTN) switch off or a commercial decision means copper services will no longer be available in that area.

The Broadband Marketing Code requires RSPs who market broadband services to ensure that the information about the technical and performance characteristics of the broadband service is presented in a clear, accurate and up-to-date way.<sup>49</sup>

Both codes came into effect in April 2022 and operate on a voluntary basis. Only signatories are bound by the requirements contained in the codes.

## Switching

The level of switching observed in a market may be indicative of the ability of consumers to act and take advantage of competing offers. It may also indicate the presence of behavioural preferences towards the existing and familiar.

There is no fixed proportion of the market that should be expected to switch. Consumers not switching provider is not necessarily a concern if those consumers are satisfied with their provider and/or do not face significant barriers to switching.

47 The guidelines can be found at [https://comcom.govt.nz/\\_data/assets/pdf\\_file/0032/269663/Marketing-alternative-telecommunications-services-during-the-transition-away-from-copper-guidelines-8-November-2021.pdf](https://comcom.govt.nz/_data/assets/pdf_file/0032/269663/Marketing-alternative-telecommunications-services-during-the-transition-away-from-copper-guidelines-8-November-2021.pdf)

48 The TCF Copper and PSTN Transition Code can be found at <https://www.tcf.org.nz/industry/standards-compliance/customer-experience/copper-and-pstn-transition-code/> and the TCF Broadband Marketing Code can be found at <https://www.tcf.org.nz/industry/standards-compliance/customer-experience/broadband-marketing-code/>

49 Advertised speeds must be consistent with independently reported results under the MBNZ programme, and consumers must have an exit right where a service materially fails to deliver what was represented.

### Time spent with current provider<sup>50</sup>

The initial survey results show that 41% of urban broadband consumers have been with their current provider for more than 5 years.

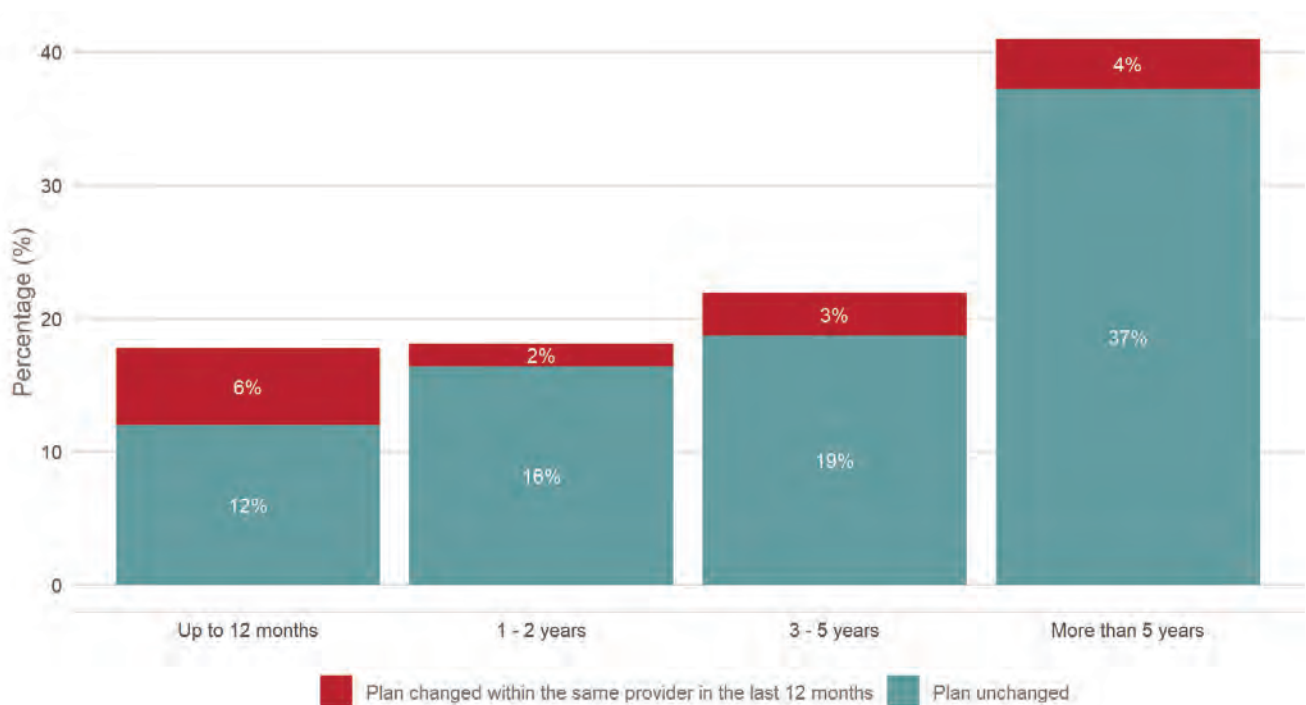
A common reason given by consumers for not switching is that they are satisfied with their current provider. However, consumers tend to compare alternative offers infrequently. As a result, such consumers may be unaware if there are other retail offers available that might better meet their needs.

A further reason for not switching provider is that consumers are switching plans with the same provider. As shown in Figure 6 below, approximately one in every 10 consumers who had been with their current provider for more than 5 years switched plans in the last 12 months.

The results below come from the first 2 months of data collection from our monthly customer satisfaction monitoring survey. Data was collected between November 2022 and January 2023 and includes responses from 860 urban residential broadband customers.

The survey is still in its initial stages and therefore the questions and results may change as the survey matures. However, the Commission considers the early results provide useful insights into the views and behaviours of consumers.

Figure 6: Time spent with current broadband provider in urban areas



Source: Customer satisfaction monitoring survey<sup>51</sup>

50 Urban consumers for the purpose of the survey are those who responded that they lived in a main city (such as Hamilton) or a provincial centre (such as Whanganui). This may not align with the definition of urban (an area where fibre is available) used elsewhere in this report.

51 Rounded numbers can generate a rounding difference. 95% confidence intervals are 14-22% for “Up to 12 months”, 15-21% for “1-2 years”, 18-26% for “3-5 years”, 37-45% for “More than 5 years”.

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## MARKET OUTCOMES PUTANGA MĀKETE

Market outcomes flow from market structure and cover the performance of telecommunications infrastructure and the levels of wholesale and retail pricing through to consumer affordability and satisfaction.

### INFRASTRUCTURE HANGANGA

**Reliable, adaptable, high-performing telecommunications infrastructure is fundamental for positive connectivity outcomes in Kiwi homes and businesses.**

#### 2022 Highlights

- New Zealand ranked 9th in the OECD for average broadband speeds – ahead of Australia, the United Kingdom, Ireland and Germany.
- In-home connectivity is increasingly the weakest link for urban consumers. Faster services experience bigger drops in performance over WiFi. For example, our testing showed a 67% drop-off in speeds on Fibre Max between the router and device.



## Performance

Broadband performance is about how much and how quickly data can move between the end user and the online content they are accessing. This data is moving back and forth across telecommunications infrastructure – from the end user’s device to servers around the world. We independently measure all of this through our Measuring Broadband New Zealand (MBNZ) programme.

Our analysis of broadband performance in urban areas covers fibre, HFC, 4G wireless broadband,

VDSL and ADSL technologies. At this stage, we do not have sufficient performance data on 5G wireless broadband. This is an area of focus for our MBNZ programme going forward.

To undertake the analysis, using information currently available, we have split our MBNZ results into urban and rural areas. This has resulted in a widening of the confidence intervals for 4G wireless broadband (indicated by the light grey lines surrounding each observation in the figures).

## Broadband speed

Download and upload speed, as measured in our MBNZ programme, is the speed data travels between the internet and the router in the home.

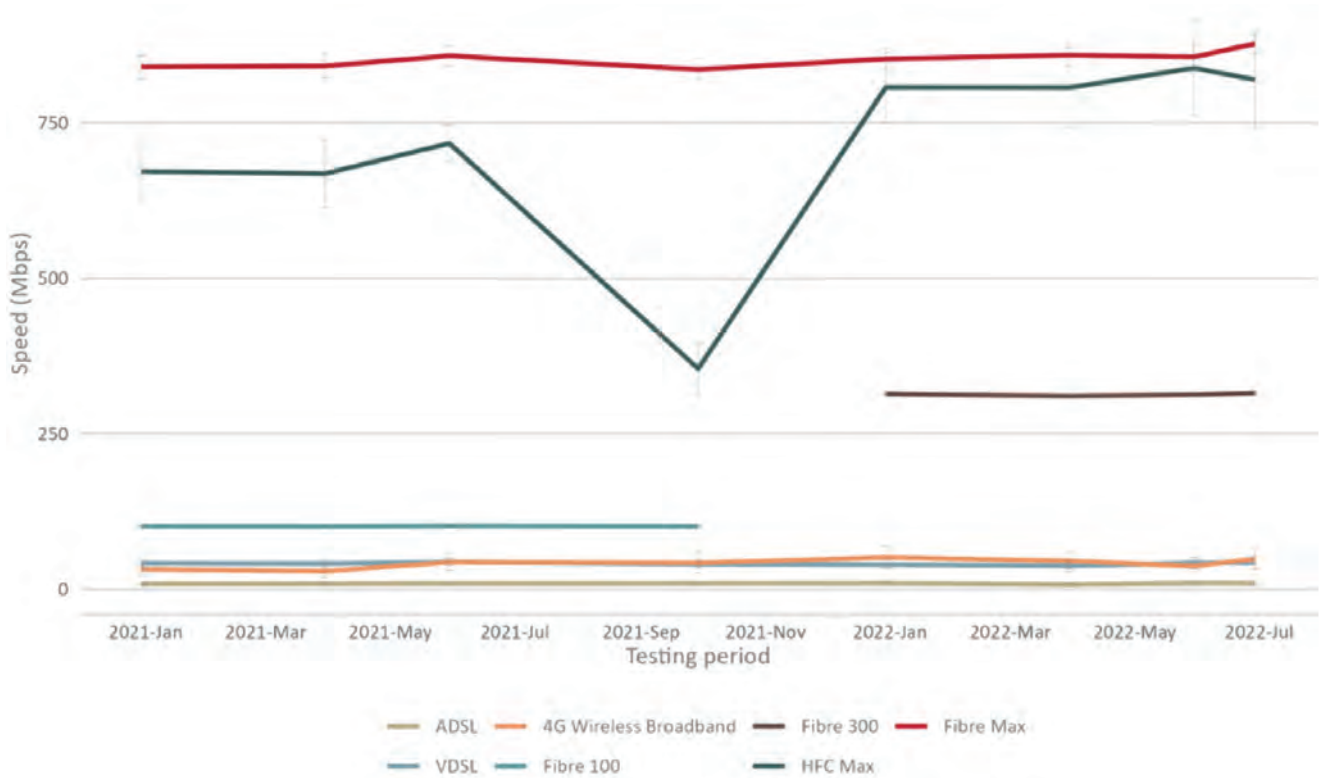
The table below provides a guide on what activities various download speeds allow. Note that other factors such as latency and the location of hosted content will impact the online experience.

Upload speeds should be considered alongside download speeds. The main applications where the impact of upload speed is apparent are file transfers and video conferencing. For example, a lower upload speed will mean that it takes longer for files to sync or email attachments to be applied.

Download speed	Online experience
0–5Mbps	Browse the internet, use search engines, use email, watch videos in lower resolutions (up to 720p). Individual large files take a long time to download (1GB at 5Mbps takes over 25 minutes).
5–40Mbps	Possibly able to stream up to ultra high definition (UHD) video on one device, or stream HD (1080p) on multiple devices. Able to download large individual files in a reasonable amount of time (1GB at 40Mbps takes just over 3 minutes).
40–100Mbps	Comfortably able to stream UHD without interruption and have multiple people use streaming services. Able to download larger files such as smaller modern game releases, in a reasonable amount of time (20GB at 100Mbps takes just over 25 minutes).
100–500Mbps	Multiple users can stream UHD video without interruption. Large files download very quickly (1GB at 500Mbps takes 16 seconds). Larger game releases download in a reasonable amount of time (80GB at 500Mbps takes just under 22 minutes).
500–1,000Mbps	Able to download even the largest video games very quickly (120GB at 1,000Mbps takes 16 minutes).

Figure 7 below shows the average urban download speeds for the technologies measured by the MBNZ programme over the past 18 months.

Figure 7: Average urban download speeds (24h)



Source: Commission analysis of MBNZ data<sup>52</sup>

Average download speeds on HFC Max saw a decrease of around 50% in late 2021. After raising the issue with Vodafone, network changes were made that saw download speeds increase to levels higher than those seen before the network issues.<sup>53</sup> There were no other material changes to download speeds during the period.

52 The grey lines above and below each point show the 95% confidence intervals.

53 MBNZ "Summer Report 2022" page 8 – see [https://comcom.govt.nz/\\_data/assets/pdf\\_file/0029/279803/MBNZ-Summer-Report-2022-24-March-2022.pdf](https://comcom.govt.nz/_data/assets/pdf_file/0029/279803/MBNZ-Summer-Report-2022-24-March-2022.pdf)

## Latency

Figure 8 below shows the average urban latency for the technologies measured by the MBNZ programme over the past 18 months.

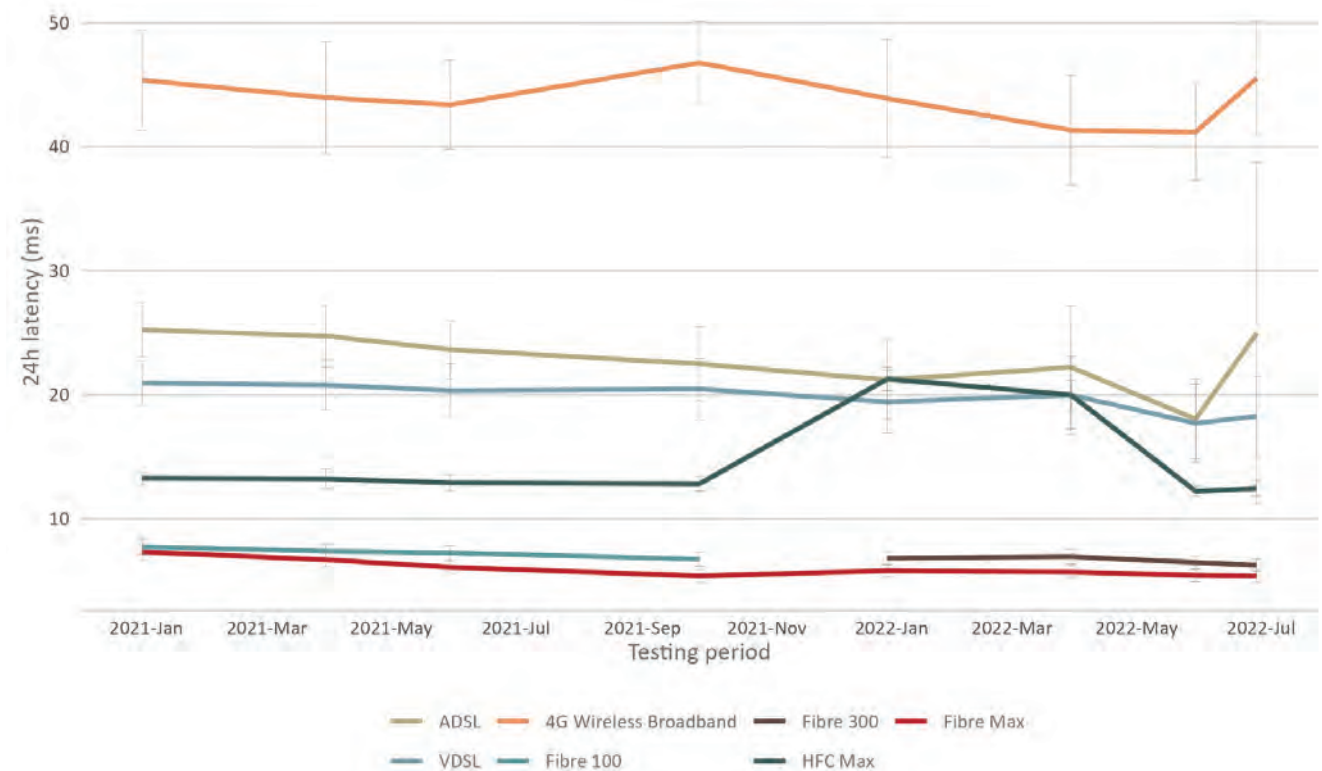
HFC Max latency temporarily increased in early 2022 as Vodafone made temporary network changes as part of efforts to improve performance.<sup>54</sup>

There were no other material changes to latency during the period.

Latency is the delay an internet connection experiences, with lower values being better than higher values.

For someone playing an online game, higher latency introduces more delay between the time that they press a button and that action being registered by other players. Higher latency can also cause video calls to jump or drop out more often.

Figure 8: average urban latency (24h)



Source: Commission analysis of MBNZ data

54 MBNZ "Summer Report 2022" page 12 – see [https://comcom.govt.nz/\\_data/assets/pdf\\_file/0029/279803/MBNZ-Summer-Report-2022-24-March-2022.pdf](https://comcom.govt.nz/_data/assets/pdf_file/0029/279803/MBNZ-Summer-Report-2022-24-March-2022.pdf)

## Gaming

As gaming is so popular in New Zealand (with 73% of Kiwis playing video games in 2021), we measure the latency to 14 popular game servers as part of our MBNZ programme.<sup>55</sup>

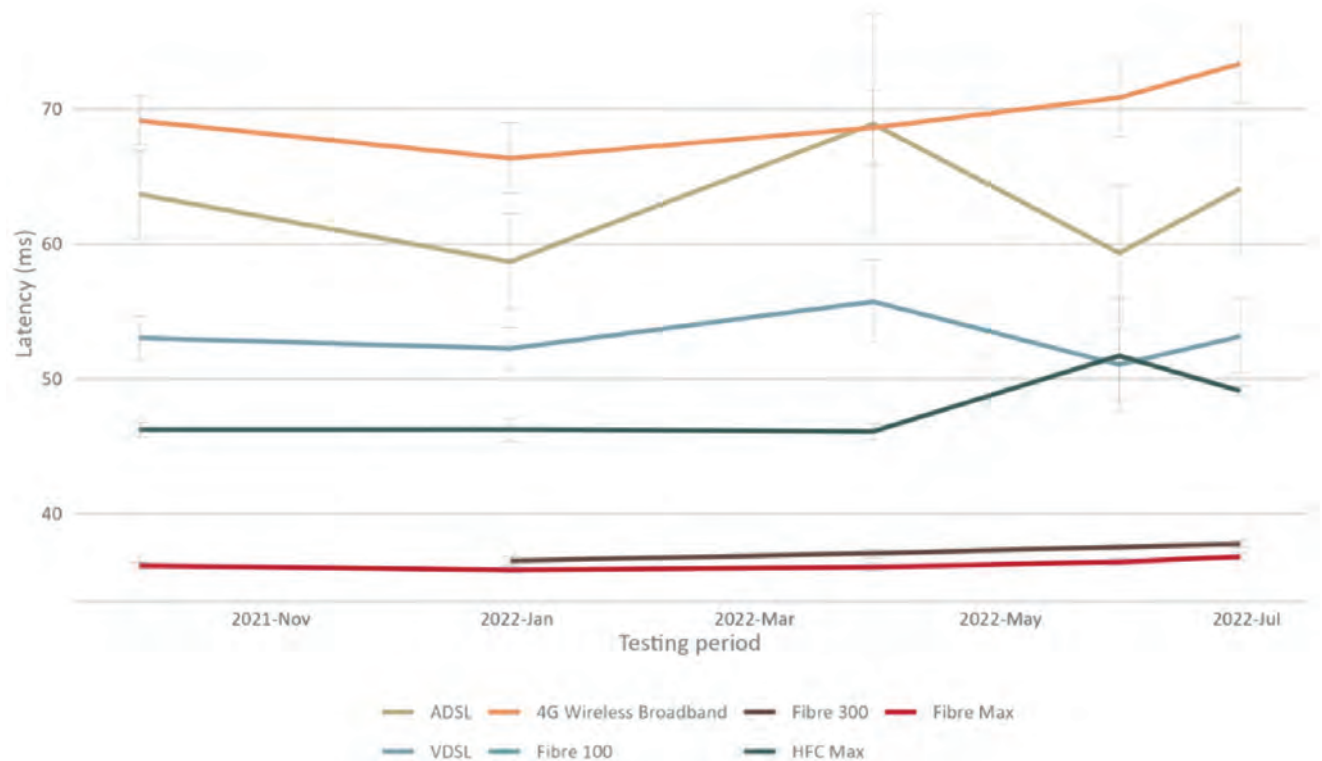
Nine of the 14 games we test are hosted in Australia.<sup>56</sup> Based on the above results, it is unlikely that 4G wireless broadband or ADSL in urban areas can support the latency required to have an enjoyable experience for low latency-dependent games such as Fortnite.

Ultimately, consumers want unconstrained experience online. Like video conferencing, gaming is an activity where real-time response matters. Real-time response requires low latency.

Aside from the technology used to connect, the location of a game's server has a large impact on the latency experienced by players. As such, we have split results based on server location.

Online gaming will start to stutter and lag when latency increases beyond 50ms or 100ms. Some games will simply refuse to admit players who have triple-figure latency because this will ruin the game for everyone else.

Figure 9: Average urban latency for games hosted in Australia

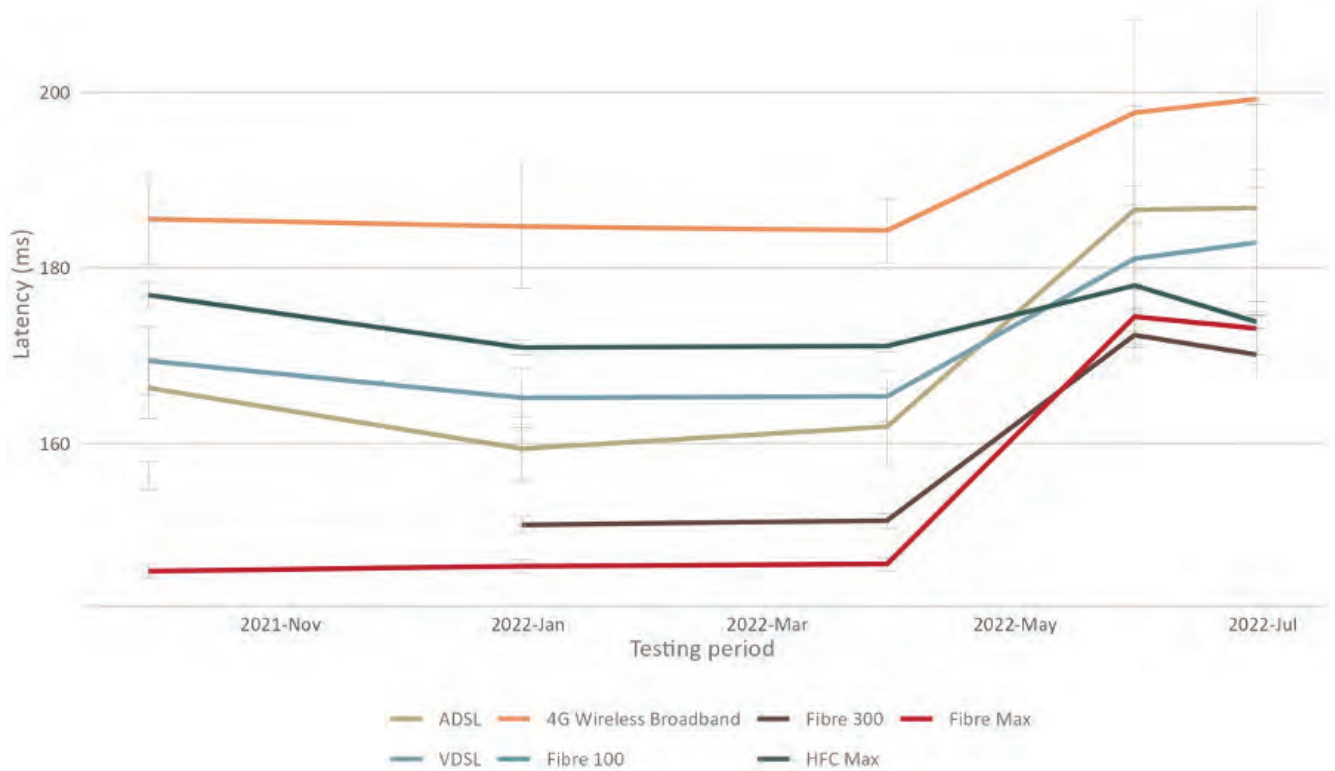


Source: Commission analysis of MBNZ data

55 IGEA "Digital New Zealand 2022", page 6 – see <https://igea.net/wp-content/uploads/2021/10/DNZ22-Report-Final-25-10-21.pdf>

56 Apex Legends, Dota 2, FIFA, Fortnite, League of Legends, PUBG, Rainbow Six Siege, Rocket League, and Valorant game servers are hosted in Australia.

Figure 10: Average urban latency for games hosted in North America



Source: Commission analysis of MBNZ data

Four of the 14 games we test are hosted in North America.<sup>57</sup> Based on the above results shown in Figure 10 the latencies across all technologies are high enough to impact the experience for some types of games. This is more a reflection of the role distance and international connectivity play rather than the capabilities of the technologies we report on.

57 Among Us, Hearthstone, Heroes of the Storm and StarCraft II game servers are hosted in North America.

## Netflix

In 2021, Netflix introduced a change to the way its high-definition (HD) and UHD video is encoded. Video is now delivered at a variable bitrate depending on the complexity of the video being transmitted. This means that a programme with fewer colours and less movement, like a cartoon, will be encoded at a lower bitrate than a fast-paced action film.

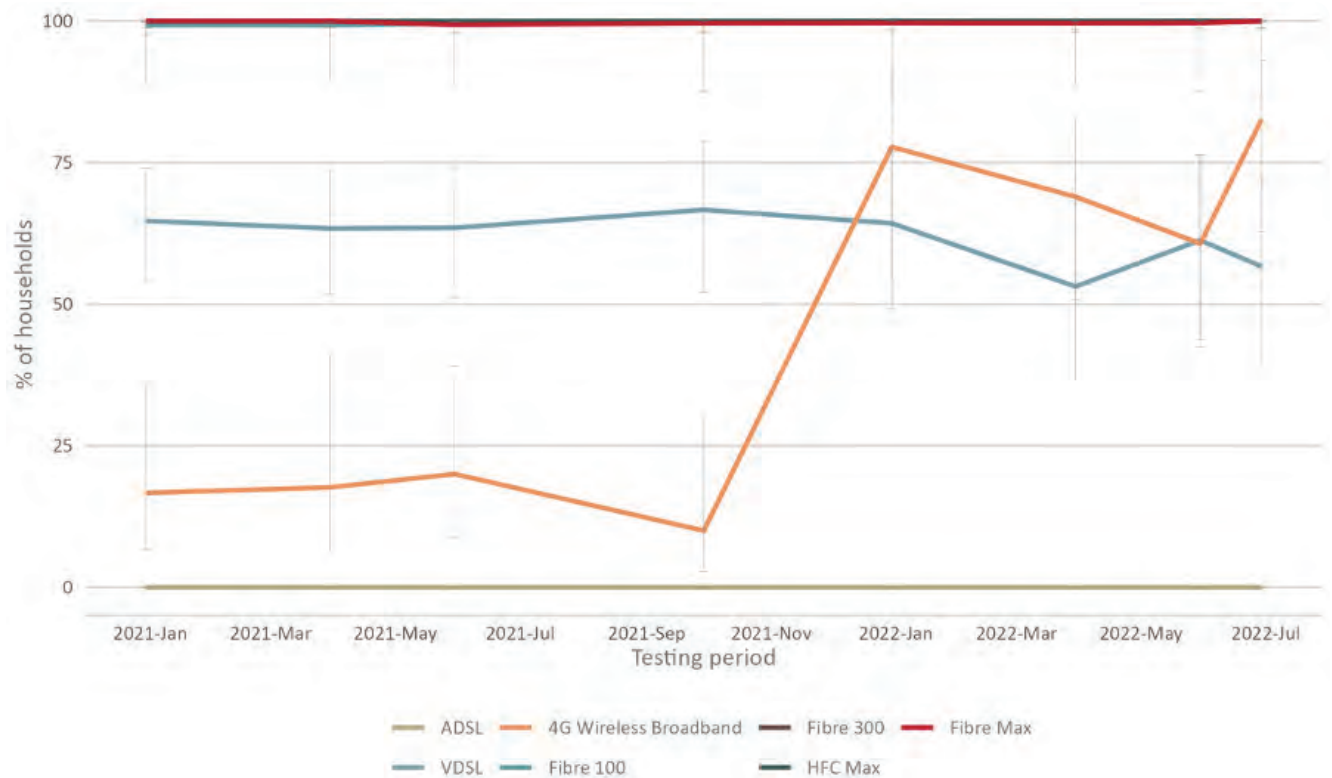
Netflix’s change has little effect on higher-speed fibre plans but does mean that a number of households on 4G wireless broadband will be more likely to be able to watch a UHD video, or even support multiple streams running simultaneously since the change was implemented.

We can see the effect of Netflix’s change in the 4G wireless broadband performance improvements in Figure 11. However, ADSL in urban areas cannot support this level of UHD activity.

Netflix is the most popular subscription streaming service in New Zealand with 40% of Kiwis aged 15 and older using the service in 2021. As such, the ability to stream Netflix in UHD is something our MBNZ programme measures.

Our MBNZ results reflect not just the performance of the infrastructure and RSPs but also any changes Netflix makes in the background – in particular, video and audio encoding, which is the process of compressing files (making them smaller to download) without compromising the quality.

Figure 11: Netflix – ability to stream two ultra-high definition streams in urban areas

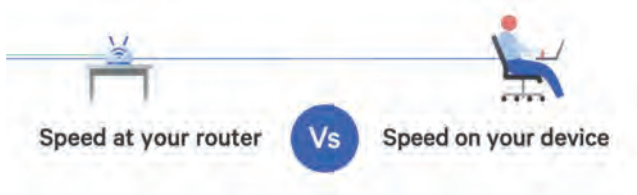


Source: Commission analysis of MBNZ data



### In-home WiFi speed

Our MBNZ programme tests volunteers’ broadband performance to their router. However, our testing partner SamKnows also has a RealSpeed product that allows volunteers to test the performance they are receiving to their devices, showing their real in-home experience.



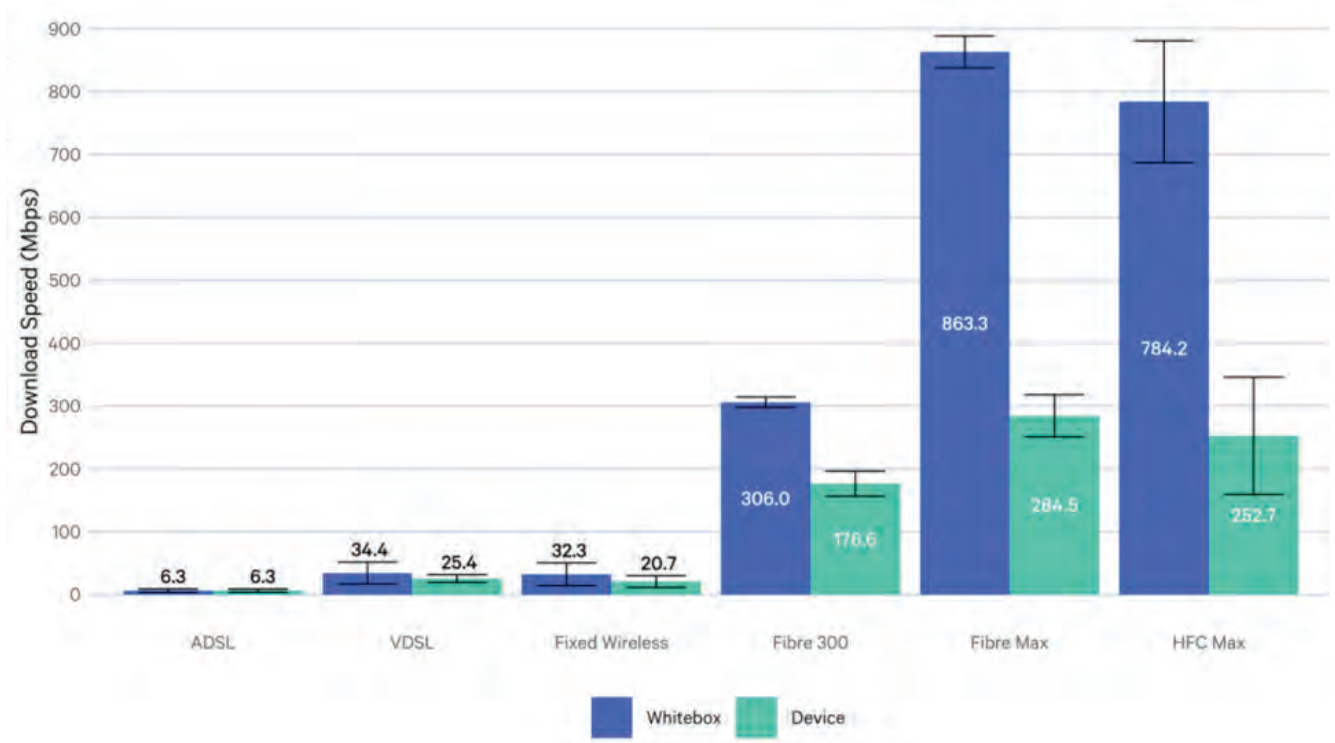
WiFi is a key part of the end-to-end performance most Kiwis experience each time they go online.

While many providers encourage consumers to connect directly to their in-home broadband services (using an ethernet cable), outside of the main TV or computer, most Kiwi homes rely on WiFi for their in-home connectivity.

As WiFi devices use radio frequencies, their performance is sensitive to a range of factors such as the size of the home, walls and other radio frequencies (such as microwaves and other WiFi networks).

Figures 12 and 13 below show the results of a RealSpeed trial we conducted in March 2022.<sup>58</sup>

Figure 12: Average urban and rural download speeds to the router vs speeds to the device<sup>59</sup>



Source: SamKnows analysis for Commission

<sup>58</sup> Analysis is based on 231 MBNZ volunteers who ran enough tests in the testing window to qualify for inclusion. To ensure statistical significance, volunteers needed to run more than five RealSpeed download tests over five different days throughout March to qualify for inclusion. The test results are likely to include wired devices (ethernet) RealSpeed does not control for wired vs wireless.

<sup>59</sup> Average of household averages. Error bars show 95% confidence intervals of the mean.

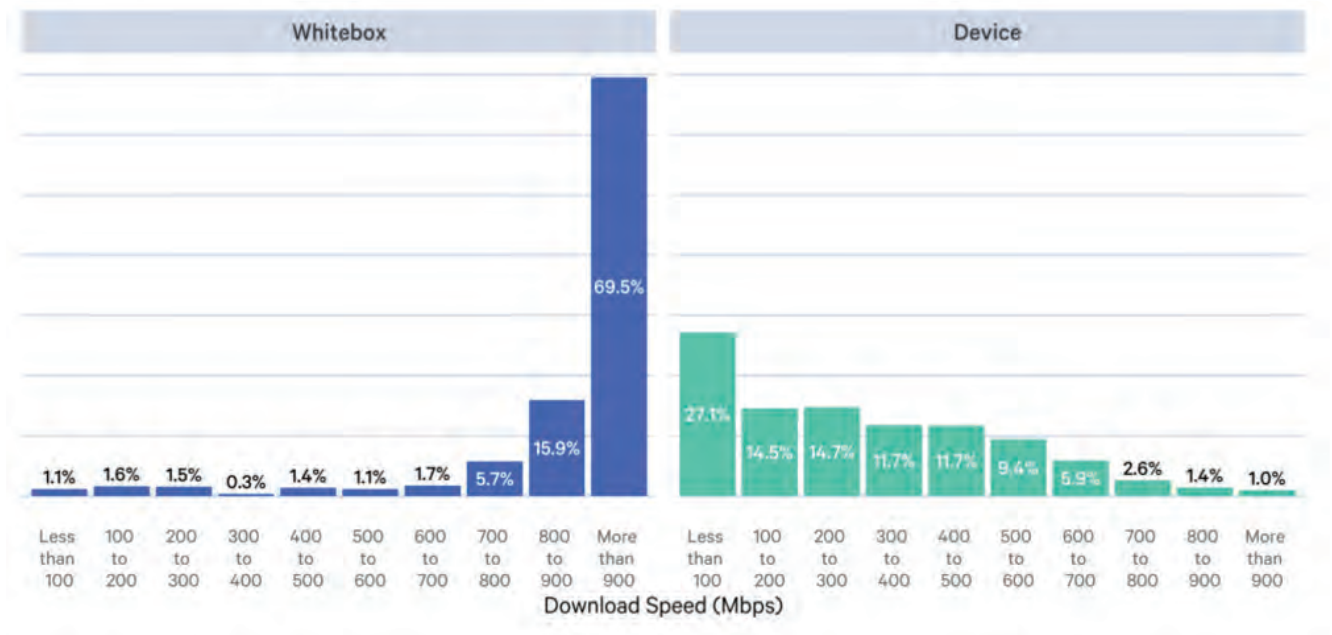
The trial found that, for high-speed fibre and HFC Max plans, there is a large difference between speeds achieved to the Whitebox (which tests router performance) and the speed achieved by the device (such as a laptop, tablet or phone).

- Fibre Max average speed dropped by 67% between the router and device.
- HFC Max average speed dropped by 68% between the router and device.

These results highlight the importance of in-home WiFi set-up and device capabilities within Kiwi homes and the impact it can have on the end-to-end connectivity chain. In simple terms, it does not matter how fast your fibre connection is if your WiFi set-up is bad.

Accordingly, we have added RealSpeed functionality to our MBNZ programme. This allows all MBNZ volunteers to test their in-home performance.<sup>60</sup> We will look to report further RealSpeed results in the next year as we increase volunteer numbers.

Figure 13: Fibre Max download speeds to the router vs speeds to the device



Source: SamKnows analysis for Commission

60 We are looking for volunteers for our MBNZ programme, in particular fixed wireless and satellite volunteers. To volunteer, go to [www.measuringbroadbandnewzealand.com](http://www.measuringbroadbandnewzealand.com)



## OECD speed comparison

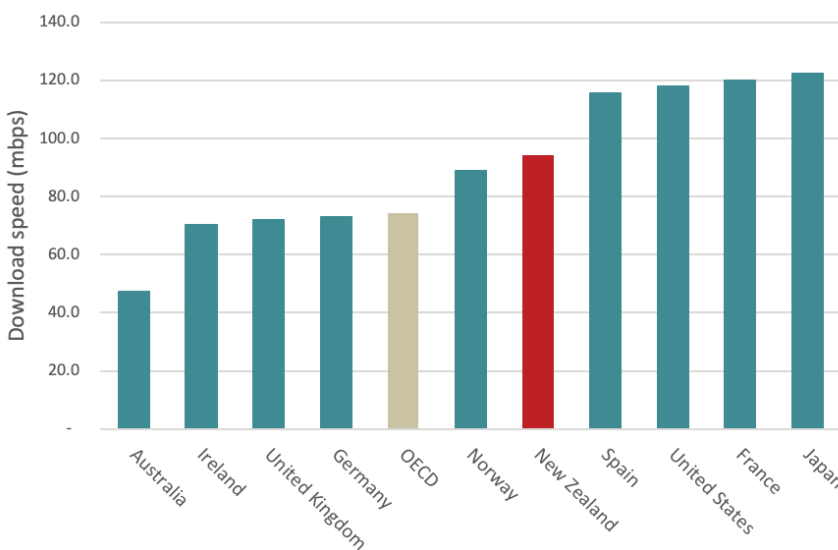
In 2022, New Zealand ranked 9th in the OECD, with average fixed broadband download speeds of 94Mbps, up from 86Mbps in 2021. Figure 14 below compares New Zealand against a subset of OECD countries. New Zealand’s average fixed broadband download speeds exceed average speeds in Australia, Ireland, the United Kingdom, Germany and the OECD average of 74Mbps.

Because Measurement Lab (**M-Lab**) data is a measure of the speed available to a device via the router, the speeds shown for New Zealand are slower than those recorded in our main MBNZ programme, which measures speeds to the router and reports those by each technology.<sup>61</sup>

Speed drop-off between the router and the device is a common phenomenon, particularly when a device is connected via WiFi, reflected in the RealSpeed trial results reported above.

In addition, as these results are for the year to 30 June 2022, the full impact of the fibre speed boost from 100Mbps to 300Mbps has yet to flow through. We expect to see further speed increases in 2023.

Figure 14: M-lab average national broadband download speed (all technologies)



The website [cable.co.uk](https://www.cable.co.uk) creates a yearly worldwide broadband speed league based on data gathered internationally by M-Lab. The league ranks the average download speed recorded by devices on fixed broadband connections available in each country. Accordingly, countries with higher fibre penetration rank higher than those with more copper connections.

Source: [Cable.co.uk](https://www.cable.co.uk) worldwide broadband speed league

61 Methodology for the speed league, including an explanation of why results differ from router-based testing such as MBNZ, can be found at [https://www.cable.co.uk/broadband/worldwide-speed-league/2022/worldwide\\_speed\\_league\\_methodology.pdf](https://www.cable.co.uk/broadband/worldwide-speed-league/2022/worldwide_speed_league_methodology.pdf)

### Australian speed comparison

In June 2022, we published our first joint report with the Australian Competition and Consumer Commission (ACCC) that aimed to present performance data for selected comparable broadband services offered in Australia over the National Broadband Network (NBN) and New Zealand.<sup>62,63,64,65</sup>

As can be seen from Figure 15 and 16 below and as the report noted, the average upload speeds measured are different in the two countries, particularly in relation to Ultrafast and Fibre Max plans, with 50 Mbps being offered in Australia and 400–500Mbps in New Zealand.

Figure 15: Australian NBN Ultrafast (fibre) compared to New Zealand Fibre Max plans

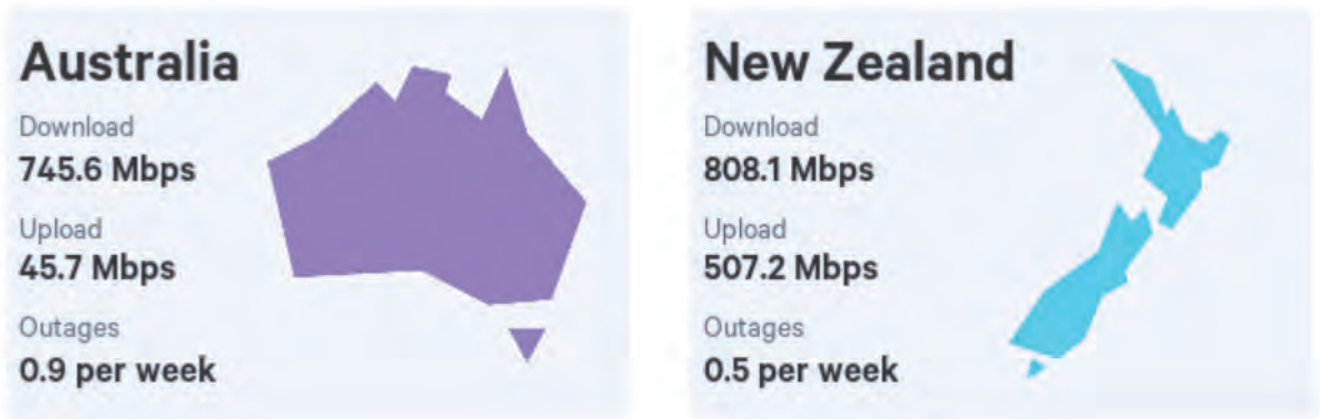
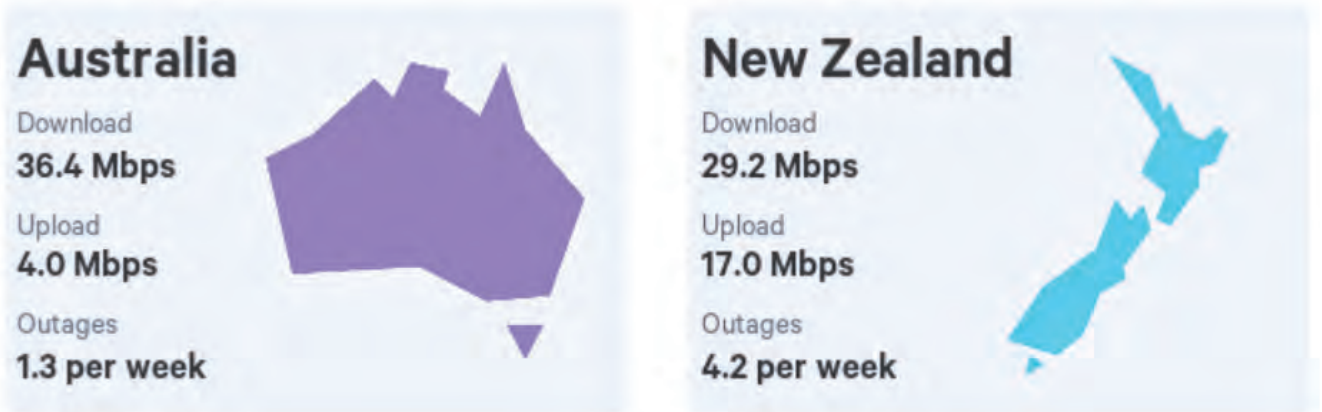


Figure 16: Australian NBN 4G wireless broadband compared to New Zealand 4G wireless broadband



62 The NBN was established in 2009 by the Commonwealth of Australia as a government business enterprise to design, build and operate a wholesale broadband access network for Australia.

63 [https://comcom.govt.nz/data/assets/pdf\\_file/0033/284496/ACCC-NZCC-Measuring-Broadband-Report-June-2022.pdf](https://comcom.govt.nz/data/assets/pdf_file/0033/284496/ACCC-NZCC-Measuring-Broadband-Report-June-2022.pdf)

64 The findings presented in the report were derived from data collected between 1 September and 30 September 2021.

65 The report did not explore differences between urban and rural areas across the two countries.

## Reliability

From 1 January 2022, a new information disclosure (**ID**) regime came into force, placing reporting obligations on Chorus, Enable, Northpower and Tuatahi. Amongst other things, ID requires transparent reporting of quality outcomes (such as availability and performance measures of the fibre networks).

The first disclosures are due on 31 May 2023. In future, ID information will provide useful insights into the reliability of fibre networks.

## Wholesale-level pricing plays an important part in shaping retail-level pricing for consumers. Regulatory oversight or obligations commonly apply at this level of the market.

### 2022 Highlights

- There are small differences between the LFCs pricing on key bitstream products.
- Price increases by Chorus may be structured to encourage uptake of the 1Gbps product.
- Chorus and Tuatahi have launched discounted 50Mbps offers.

### Fibre service pricing

The MNOs are the largest wholesale customers of Chorus and LFCs. There is competitive tension between wireless and fixed broadband services that is reflected in the prices of these services.

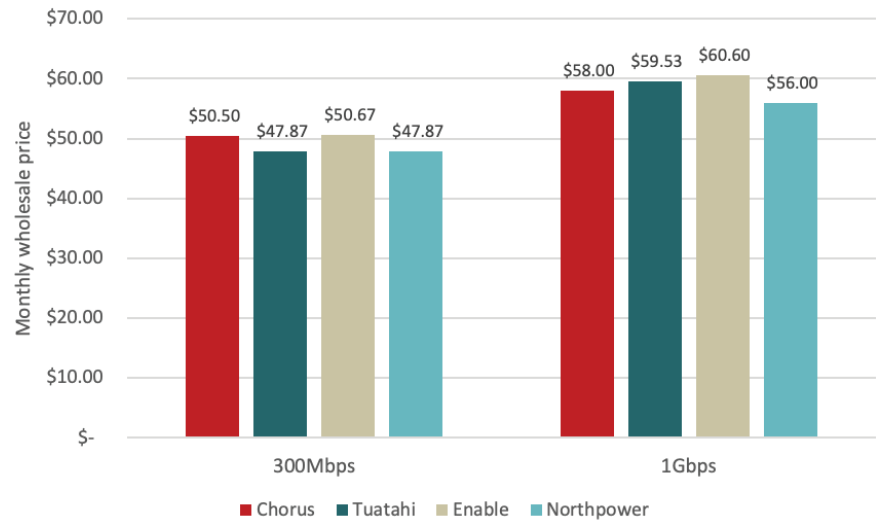
As shown in Figure 17 below, LFC prices, while not identical, are centred around Chorus's prices.

The regulatory regime for fibre networks requires LFCs to offer several wholesale products. However, with a few exceptions, they have freedom to offer and price products on a commercial basis.

Fibre pricing in New Zealand was originally set in the contracts the LFCs agreed with the government as part of the UFB initiative. The contracted price caps allowed for a smooth transition from the copper pricing at the time.

Figure 17: Wholesale fibre prices (as at October 2022)

Source: LFCs price lists<sup>66</sup>



It is also worth noting that the four LFCs update their prices at different times during the year. For example, Tuatahi’s 300Mbps service increased to \$49.78 on 1 March 2023.

In October 2022, Chorus increased the wholesale price of its core bitstream products. However, the price increase on the 300Mbps product was larger than that on the 1Gbps product.

This pricing structure may reflect Chorus’s desire to increase the percentage of connections on the 1Gbps service – a level of performance beyond the reach of current wireless broadband.

Table 4: Chorus’s wholesale prices

Plan	October 2021	October 2022	% change
300Mbps <sup>67</sup>	\$47.87	\$50.50	5.5%
1Gbps	\$56.00	\$58.00	3.6%

Source: Chorus<sup>68</sup>

66 Chorus’s prices were reported in FY22 Full Year Results “Investor presentation” slide 37 available at <https://company.chorus.co.nz/reports>; Tuatahi’s October 2022 price list is available at [https://tuatahi.cdn.prismic.io/tuatahi/5c486082-b2bb-4f07-b521-f1ee1bd6519a\\_TFF+Price+List+-+Oct+2022+-+20221011.pdf](https://tuatahi.cdn.prismic.io/tuatahi/5c486082-b2bb-4f07-b521-f1ee1bd6519a_TFF+Price+List+-+Oct+2022+-+20221011.pdf); Enable’s July 2022 price list is available at <https://www.enable.net.nz/assets/Corporate-Publications/220401-Enable-UFB-Price-List-Jul-2022-v1.14-FINAL.pdf>; Northpower’s July 2022 price list is available at [https://northpower.com/media/documents/fibre-cmc-documents/NFL-Price-List-2022\\_1\\_Jul-v-2.6.pdf](https://northpower.com/media/documents/fibre-cmc-documents/NFL-Price-List-2022_1_Jul-v-2.6.pdf)

67 The 300Mbps plan was not available in October 2021 so the price listed is the 100Mbps plan.

68 Chorus FY22 Full Year Results “Investor presentation” slide 37 – see <https://company.chorus.co.nz/reports>

## Discounted 50Mbps service

In April 2022, Chorus began offering a discounted 50Mbps fibre starter wholesale product for \$38 per month. In February 2023, the price was further reduced to \$35.<sup>69</sup> The offer is restricted to RSPs who retail the service at (or below) \$60 per month. RSPs who charge above \$60 for the service will instead be charged the standard wholesale fee of \$47.28.

Tuatahi launched a similar discounted 50Mbps fibre starter product in October 2022 for \$38 per month. Tuatahi does not impose a retail price cap for its offer.<sup>70</sup>

Enable and Northpower do not offer a discounted 50Mbps wholesale product and price their standard 50Mbps product at \$46.82 and \$52.79 respectively.<sup>71</sup>

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69 Chorus "Home fibre starter January – June 2023" see <https://sp.chorus.co.nz/product-offer/home-fibre-starter-january-june-2023>

70 Tuatahi "\$38 Fibre starter offer!" see <https://www.tuatahifibre.co.nz/articles/introducing-new-fibre-starter-residential-product>

71 Enable's July 2022 price list is available at <https://www.enable.net.nz/assets/Corporate-Publications/220401-Enable-UFB-Price-List-Jul-2022-v1.14-FINAL.pdf>; Northpower's July 2022 price list is available at [https://northpower.com/media/documents/fibre-cmc-documents/NFL-Price-List-2022\\_1\\_Jul-v-2.6.pdf](https://northpower.com/media/documents/fibre-cmc-documents/NFL-Price-List-2022_1_Jul-v-2.6.pdf)

## Retail pricing outcomes are based on the underlying infrastructure or wholesale costs but also take into account competitive dynamics, relativities between offers and consumer demand.

The urban retail market is characterised by the three MNOs, who are also the largest RSPs for fibre broadband, balancing higher margins on their own fixed wireless networks with wholesale fibre deployed across the customer base.

### 2022 Highlights

- RSPs have largely held their retail fibre prices despite wholesale price increases. Instead, many RSPs are now charging consumers separately for routers.
- Urban broadband prices are in line with OECD averages.
- Major RSPs are not taking advantage of Chorus's discounted Fibre 50 product.

### Prices

We use Teligen's global price benchmarking database for some aspects of our pricing analysis. Teligen's benchmarks cover plans from incumbent providers who serve at least 70% of customers in a given country. In the case of New Zealand, Spark, Vodafone, Orcon and Slingshot are the brands included. We are working with Teligen to have 2degrees added to the benchmark going forward.

## Wholesale flow-through

The gap between wholesale and retail prices for Fibre 300 sits at approximately \$35. The gap between wholesale and retail prices for Fibre Max (which is 1Gbps at wholesale) sits at approximately \$42. Wholesale prices have increased over the year, but major RSPs have held their fibre prices.

However, we have observed a trend of RSPs no longer providing routers as part of the base price. In 2020, most major RSPs included a router at no additional cost to the base price of the plan. In 2022, most major RSPs now offer 'bring your own device' plans, offer routers for an extra rental fee (commonly around \$5 per month) or offer routers for outright purchase (ranging from \$100–\$300).<sup>72,73</sup> This means that, while plan prices may be unchanged, the total end cost for consumers to access broadband services has increased since 2020.

The price differential between Fibre 300 and Fibre Max sits at \$15. While Fibre Max offers faster speeds, our MBNZ testing has shown that Fibre 300 will support all modern internet applications and the needs of multi-user households.<sup>74</sup> As such, the price premium for Fibre Max is most likely to be justified in cases where a household or business is frequently uploading or downloading large files.

Table 5: Teligen retail fibre price benchmarks

Plan	December 2021	December 2022
Fibre 300	\$85	\$85
Fibre Max	\$100	\$100

Source: TechInsights

## MNO wireless broadband pricing

The retail price for the most common 4G wireless broadband plans offered by MNOs has decreased by \$10 over the past year. This has seen the price gap between an unlimited 4G fixed wireless plan and a Fibre 300 plan increase to approximately \$25 per month. Our MBNZ results show that fibre outperforms 4G wireless broadband, but consumers may be willing to accept lower performance for a lower price.

The premium for a 5G fixed wireless plan over a 4G plan ranges from \$5 (2degrees) up to \$20 (Spark).

Table 6: 4G wireless broadband monthly retail prices in urban areas

Plan	December 2021	December 2022
300GB data cap	\$55	\$45
Unlimited data	\$65 - \$70	\$60

Source: RSP websites

72 Spark "Essential Fibre Terms" (December 2022) – see <https://www.spark.co.nz/help/other/terms/personal-terms/essential-fibre-terms>

73 2degrees "Fibre Broadband Offer Summary" (December 2022) – see <https://www.2degrees.nz/termsfuse/personal/broadband/offer-summary/2degrees-fibre-broadband-offer-summary>

74 MBNZ Spring report 2022, page 5 – see [https://comcom.govt.nz/\\_data/assets/pdf\\_file/0028/295804/MBNZ-Spring-Report-2022-27-October-2022.pdf](https://comcom.govt.nz/_data/assets/pdf_file/0028/295804/MBNZ-Spring-Report-2022-27-October-2022.pdf)



## Fibre and Wireless Broadband pricing trends

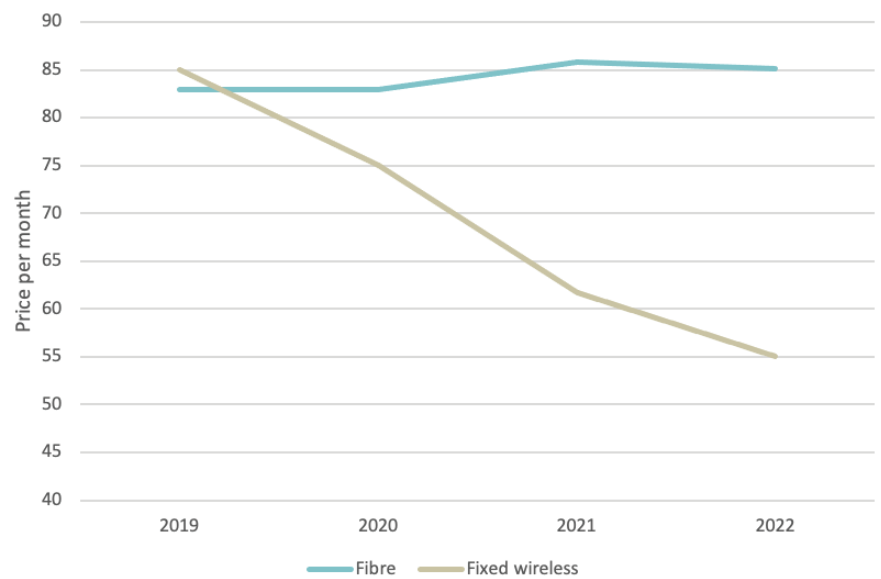
As shown in Figure 18, the benchmark fibre prices (100Mbps shifting to 300Mbps) have been steady over the past 4 years, while 4G wireless broadband

price benchmarks have decreased substantially. The growing price differential between fibre and 4G wireless broadband is a product of a variety of factors, including the

different cost structures for the MNOs and the ‘discount’ required to win customers choosing between fibre and wireless broadband.

*Figure 18: Teligen fibre vs 4G wireless broadband benchmark prices in New Zealand<sup>75</sup>*

Source: TechInsights



<sup>75</sup> Fibre price reflects the most common fibre plan (Fibre 300 in 2022 and Fibre 100 in prior years). 4G wireless broadband price reflects a 4G 300Gb plan from 2020 to 2022 and a 120GB plan in 2019 (as 300GB plans were unavailable in 2019).

## Consumer price index

Over the period June 2017 to June 2022, prices for telecommunications services, as measured for the purposes of the consumer price index (CPI), fell by 9%. This compares with a 16% increase in the 'All Groups' CPI and an 8% increase in the prices for household energy services over the same period.

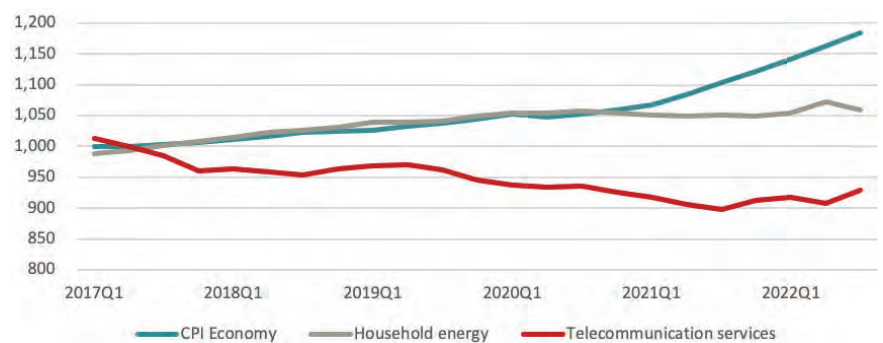
The CPI and its sub-indices (for example, telecommunications services) is a constant quality index.

This means that better-quality services and plans are reflected as price decreases.

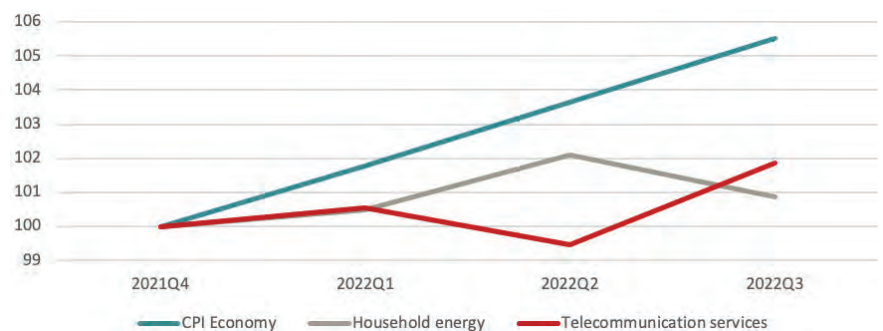
For example, the speed upgrade applied to the 100Mbps plan – making it 300Mbps – without a resulting price increase is treated in the CPI calculation as a quality improvement, which shows up as a price decrease in order to hold quality (in this case speed) constant.

As shown in Figure 19, the telecommunications services price index has tracked down until mid-way through 2021. Figure 20 shows that price increases in telecommunications are now marginally outstripping quality improvements being made by RSPs.

**Figure 19: CPI – telecommunications services vs energy 2017 Q1 - 2022 Q3**  
Source: Statistics New Zealand



**Figure 20: rebased CPI – telecommunications services vs energy 2021 Q4 – 2022 Q3**  
Source: Statistics New Zealand<sup>76</sup>



76 Timeseries plots rebased CPI with a base period value 2021 Q4. The series was prepared by Commerce Commission using Statistics New Zealand data.

## International price comparison

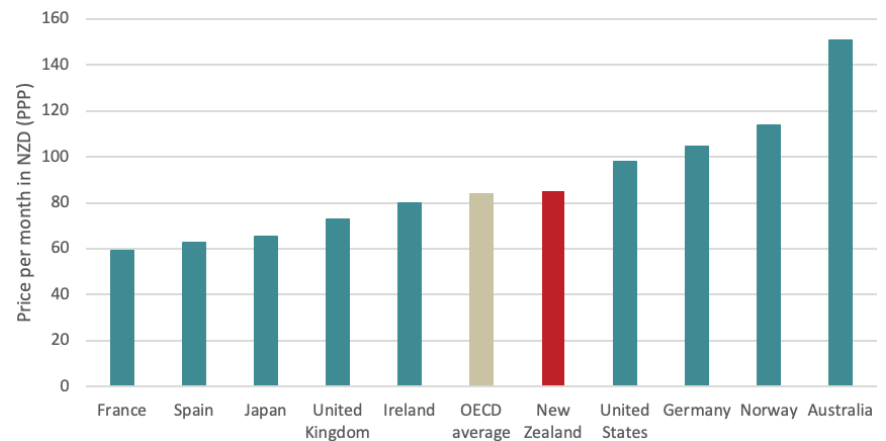
To get an indication of how New Zealand broadband prices compare to those overseas, we use Teligen benchmarking to compare the

price of the cheapest benchmark plan available in New Zealand against the cheapest benchmark plan available in OECD countries.

The benchmarking covers three categories that represent the most common urban broadband plans in New Zealand.<sup>77</sup>

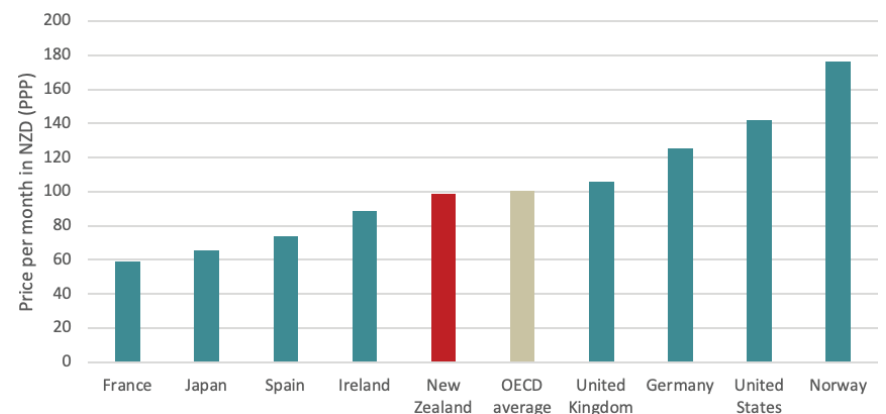
**Figure 21: Teligen price for Fibre 300 (or equivalent) – September 2022<sup>78</sup>**

Source: TechInsights



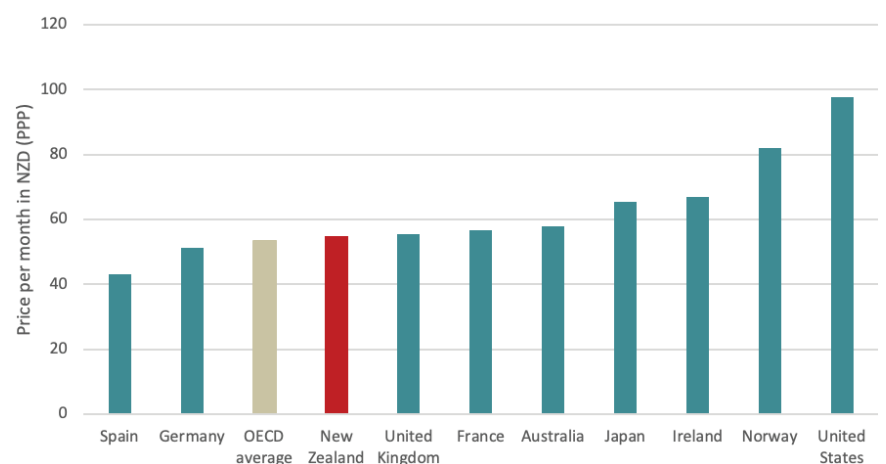
**Figure 22: Teligen price for Fibre Max (or equivalent) – September 2022<sup>79</sup>**

Source: TechInsights



**Figure 23: Teligen 4G wireless broadband, 300GB (or equivalent) – September 2022<sup>80</sup>**

Source: TechInsights



77 The price of the plans used in the benchmarking analysis is adjusted to take into account whether the plan requires a consumer to purchase or rent a router.

78 Price for unlimited broadband-only fibre service delivering a minimum of 300Mbps speeds.

79 Price for unlimited broadband-only fibre service delivering a minimum of 800Mbps speeds. Australia is not displayed as no Fibre Max products are offered.

80 Price for broadband-only service (any technology) providing at a minimum 300GB of data and 20Mbps speeds.

Overall, relative to other OECD countries, the price of our broadband plans (Fibre 300, Fibre Max, and 4G wireless broadband) places us in the middle of the pack.

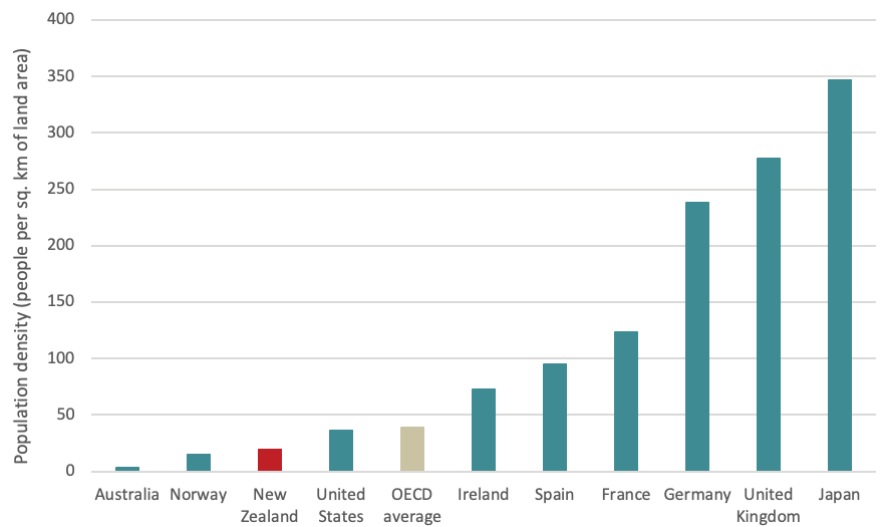
- Fibre 300 is \$1 higher in New Zealand than the OECD average

*Figure 24: Population density of Teligen benchmark countries – 2020*

Source: The World Bank

- Fibre Max is \$1 lower in New Zealand than the OECD average.
- 4G wireless broadband is \$2 higher in New Zealand than the OECD average.

For context, when OECD broadband prices are viewed against relative population densities (refer Figure 24 below), where lower density tends to result in higher costs to serve each user, New Zealand’s broadband pricing performs well.



## Subsidised plans for low-income consumers

### Fibre Starter

As noted in the wholesale section above, Chorus and Tuatahi offer a discounted Fibre 50 fibre starter service intended to make broadband more affordable for low-income consumers.

While Spark and Vodafone offer a Fibre 50 product, both price it above Chorus's \$60 per month retail price cap (\$75 and \$69 per month respectively). As such, both will be paying the higher wholesale cost of \$47.28 in Chorus areas.<sup>81</sup>

This means no major RSPs are taking up Chorus's fibre starter offer. There are some smaller brands such as Flip (a 2degrees sub-brand) and smaller RSPs (Ash Net, Hotshot, Gecko, Unifone) that appear to be utilising Chorus's fibre starter product by offering Fibre 50 for \$60 or less per month.

In total, there are approximately 75,000 Fibre 50 connections, but we estimate that the majority of these will not be discounted fibre starter plans.

### Skinny Jump

Spark launched Skinny Jump in 2020 as a wireless broadband service for people who do not have a broadband connection at home due to the cost.

Households eligible for Skinny Jump include some of the groups most at risk of digital exclusion, as identified in the government's digital inclusion blueprint. These include:<sup>82</sup>

- families with children
- job seekers
- seniors
- people with disabilities
- refugees and migrant communities
- those in social housing.

Households who meet the criteria can sign up for the service through one of the 300 community partners nationwide. The service is not available everywhere as households need to live in an area where Spark's 4G fixed wireless service is available.

81 As Spark offers 50Mbps/20Mbps in Tuatahi areas, it is not taking advantage of the Tuatahi fibre starter offer as that offer is restricted to a 50Mbps/10Mbps service. Vodafone meanwhile may be taking advantage of Tuatahi's offer as its Fibre 50 product is a 50Mbps/10Mbps service.

82 Department of Internal Affairs "The Digital Inclusion Blueprint" (March 2019) – see <https://www.digital.govt.nz/assets/Documents/113Digital-Inclusion-BlueprintTe-Mahere-mo-te-Whakaurunga-Matihiko.pdf>

Skinny Jump is pre-paid with no contract or credit checks. Households are supplied with a free modem and receive 15GB of free data every month. Households are able to buy 35GB blocks of data for \$5 up to a maximum of 210GB (\$30) of data per month.

Table 7: Skinny Jump prices

Data cap	Term	Modem	Monthly cost
50GB	Open	Free	\$5
120GB	Open	Free	\$15
210GB	Open	Free	\$30

Source: Skinny website (as at January 2023)<sup>83</sup>

Skinny Jump prices are substantially cheaper than Skinny's current standard 4G fixed wireless plans shown in Table 8 below.

Table 8: Skinny standard wireless plans

Data cap	Term	Modem	Monthly cost
120GB	Open	\$199 + shipping	\$50
Unlimited	Open	\$199 + shipping	\$55
120GB	12 months	\$0 + shipping	\$50 (plus 2 months free)
Unlimited	12 months	\$0 + shipping	\$55 (plus 2 months free)

Source: Skinny's website (as at January 2023)

Currently, around 23,000 households have signed up to Skinny Jump.<sup>84</sup> Spark has a target of connecting 35,000 households to Skinny Jump by the end of June 2023.<sup>85</sup>

## COVID-19 Ministry of Education Support Package

In early 2020, at the start of the COVID-19 pandemic, New Zealand went into a nationwide lockdown and schools, kura and early learning services shifted to online learning.

The Ministry of Education worked with the education sector and RSPs to identify households that required an internet connection for students to be able to learn online. Schools and kura were then able to decide whether a certain household required a connection to be able to learn remotely.

Initially the Ministry of Education contracted RSPs to provide a free internet connection to these households for either 6 months or until the end of December 2020.<sup>86</sup> The package has been extended several times and is currently set to expire June 2023.<sup>87</sup>

At its peak, over 50,000 households were connected to the internet through this initiative.<sup>88</sup> The latest extension to the programme provides funding for 18,000 households.<sup>89</sup>

83 <https://www.skinny.co.nz/jump/about/>

84 Spark "FY22 Annual Report" page 57 – see <https://investors.sparknz.co.nz/FormBuilder/Resource/module/gXbeer80tkeL4nEaF-kwFA/Spark%20FY22%20Annual%20Report%20FINAL.pdf>

85 Ibid page 140.

86 Ministry of Education "Education report: COVID-19 response – distance learning package" (29 July 2020), para 24 – see <https://assets.education.govt.nz/public/Uploads/R-1234656-Education-Report-COVID-19-Response-Distance-learning-Redacted.pdf>

87 TUANZ newsletter – 28 November 2022.

88 Ministry of Education "Education report: COVID-19 response – distance learning package" (29 July 2020), para 10 – see <https://assets.education.govt.nz/public/Uploads/R-1234656-Education-Report-COVID-19-Response-Distance-learning-Redacted.pdf>

89 TUANZ newsletter – 28 November 2022.

# The market outcomes produced through infrastructure, wholesale and retail ultimately come down to consumers' usage and their overall satisfaction with the connectivity provided.

## 2022 Highlights

- The percentage of household average net income required to purchase broadband in urban areas varies across New Zealand.
- Initial survey results show that urban broadband customers are most satisfied with coverage and availability and least satisfied with customer service.

## Affordability

Affordability is a relative concept that does not lend itself to precise indicators. Affordability depends not only on price and income but also on other competing spending choices available.

Our 2022 analysis simply compares the average available Fibre 300 price with the distribution of household average net income across the regions of New Zealand.

The affordability analysis used approximated 2022 average net income and the annual average retail price for Fibre 300 (\$1,020) as at September 2022. Average net income was derived by adjusting average gross income data from the 2018 Census by the labour cost index and applicable tax rates.

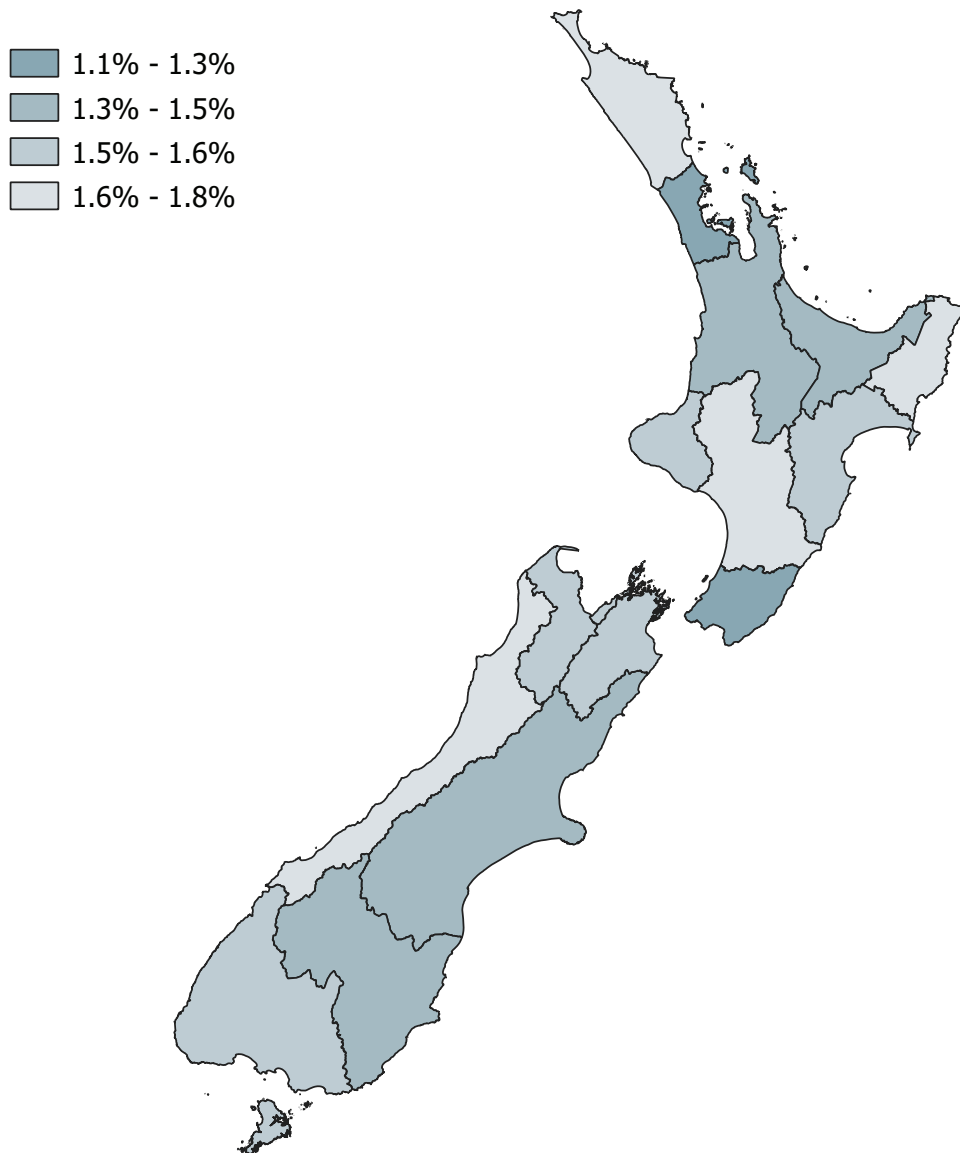
Census data was sourced from Statistics New Zealand and was mapped on an aggregated meshblock level. These meshblocks were then compared against fibre availability information contained in the Commission's specified fibre areas (SFA) map. If at least one property from the meshblock was within an SFA, the entire meshblock was treated as a fibre area.

For readability these meshblocks where fibre is available have been aggregated to the regional level to produce the map and figures presented below.

Figure 25 below illustrates the affordability of the most common urban broadband product, Fibre 300, in areas where fibre is available.

The percentage of household income required to purchase a Fibre 300 product ranges from 1.1% in Auckland to 1.8% in the West Coast.

*Figure 25: Percentage of household net income to purchase fibre broadband by region*



Source: Commission analysis of Statistics New Zealand data



## Satisfaction

Initial results from our customer satisfaction monitoring survey show that 81% of urban broadband customers are satisfied with their broadband service. The survey also asked urban broadband customers to rate their satisfaction with various service areas.

Due to the early stage in our survey process, we are not yet able to

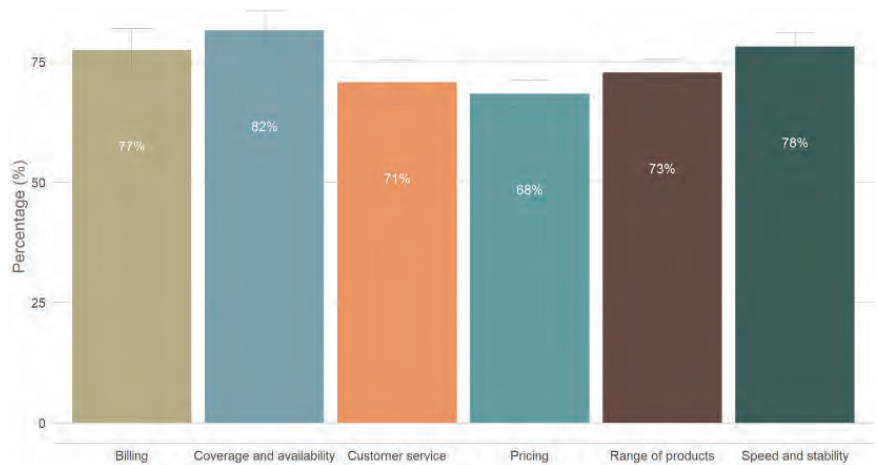
split out satisfaction levels for urban consumers based on their underlying technology (fibre, 4G wireless broadband and copper), as this results in wide confidence intervals for both 4G wireless broadband and copper broadband (confidence intervals are indicated by the light grey lines surrounding the top of each bar). However, as

this survey continues throughout 2023, we will be able to assess whether there are differences emerging across consumer groups.

Results at this stage suggest that urban broadband consumers are most satisfied with coverage and speed and least satisfied with customer service and pricing.

*Figure 26: Satisfaction levels of urban consumers with broadband*

Source: Customer satisfaction monitoring survey



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# Rural connectivity at home

Honotanga  
ā-tuawhenua  
i rō kāinga

Where fibre  
broadband is  
**unavailable**



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## MARKET STRUCTURE HANGANGA MĀKETE

Market structure covers structural elements of telecommunications markets from infrastructure availability and the share of wholesale and retail offerings using that infrastructure through to the transparency and understanding of these offers by consumers.

### INFRASTRUCTURE HANGANGA

**Telecommunications infrastructure – the physical components that connect homes and businesses to voice and broadband services – provides the foundation for how the rest of the market operates in New Zealand.**

The starting point for connecting Kiwi homes with high-speed internet is the infrastructure that has been deployed throughout communities and neighbourhoods across New Zealand. In rural areas, infrastructure overlap is limited, particularly that delivering high-speed connectivity. Much of the infrastructure in rural areas has been funded (in whole or in part) by government.

#### 2022 Highlights

- Starlink’s satellite constellation now provides coverage to almost all parts of New Zealand.
- Government programmes have continued to fund the roll-out and upgrade of higher-speed rural broadband services.

## Copper

Chorus operates the copper network across New Zealand, which at its peak covered 98% of the population. The copper network remains largely ubiquitous across rural parts of New Zealand.

The copper network supports voice and broadband (ADSL and VDSL) services.

## Rural Capacity Upgrade Programme

In April 2020, the government launched the Rural Capacity Upgrade (RCU) programme. The RCU builds on phase 1 of the Rural Broadband Initiative (RBI1), an earlier programme completed in June 2016 that delivered wireless and copper improvements for the urban fringe. RCU initially upgraded 70 rural wireless broadband towers at the start of the first COVID-19 lockdown to ease network congestion. The RCU has subsequently expanded to include upgrades for other technology types, including fibre, VDSL and WiMAX wireless broadband.

In February 2022, the RCU programme was expanded to, among other things, provide funding for the expansion of VDSL coverage.<sup>90</sup> The February 2022 expansion is set to improve internet performance for 47,000 rural households and businesses by the end of 2024. Specific performance targets for the programme are not published.<sup>91</sup>

By June 2022, 6,700 premises had benefited from rural capacity upgrades. The number of premises receiving VDSL coverage as a result of the upgrades is not published.

90 Beehive "Homes, businesses to benefit from upgrade to rural broadband" (23 February 2022) – see <https://www.beehive.govt.nz/release/homes-businesses-benefit-upgrade-rural-broadband>

91 Crown Infrastructure Partners "Quarterly Connectivity Update – June 2022" – see <https://www.crowninfrastructure.govt.nz/wp-content/uploads/CIP-Connectivity-Quarterly-Report-June-2022.pdf>

## 4G Wireless Broadband

In February 2022, the RCU programme was expanded to, among other things, fund upgrades to additional cell towers and build new towers.<sup>92</sup> The February 2022 expansion is set to improve internet performance and mobile coverage for 47,000 rural households and businesses by the end of 2024. Specific performance targets for the programme are not published.

By June 2022, 6,700 premises had benefited from rural capacity upgrades. The number of premises receiving services from new or upgraded towers is not published.<sup>93</sup>

Wireless broadband (also known as fixed wireless) can be provided over various types of networks including mobile, WiMAX (discussed in the next section) and satellite. In the mobile case, wireless broadband uses much of the same infrastructure and spectrum as mobile call, text and data services. In most cases, wireless broadband is restricted to a set location and is delivered via a router.

The wireless broadband coverage offered by mobile networks is based on the type and amount of spectrum the network operator has acquired, as well as the number and position of sites (towers and masts) hosting equipment. The number of people potentially using a site at any one time is an important consideration for these operators.

In New Zealand, there are three national mobile networks operated by 2degrees, Spark, and Vodafone. All three of these MNOs offer wireless broadband using their 4G and 5G networks. However, coverage differs from other mobile services.

The primary reason for the coverage difference is that wireless broadband requires and uses significantly more network capacity than mobile.

92 <https://www.beehive.govt.nz/release/homes-businesses-benefit-upgrade-rural-broadband>

93 June 2022 Crown Infrastructure Partners' Connectivity Quarterly Report. Report available at: <https://www.crowninfrastructure.govt.nz/wp-content/uploads/CIP-Connectivity-Quarterly-Report-June-2022.pdf>

## RBI2

RBI2 was set to be substantially completed by the end of 2022, and as at 30 June 2022, the programme was 89% complete.<sup>94</sup>

In the year to 30 June 2022, an additional 7,700 rural premises gained access to improved broadband through RBI2. This is less than 2021 when 15,700 rural premises gained access as a result of the programme moving into its final phase.<sup>95</sup> The number of premises connected through the Rural Connectivity Group (**RCG**) is not published.

In 2017, Crown Infrastructure Partners (CIP) assessed that 90,000 rural households and businesses cannot access broadband speeds of at least 20Mbps download. The RBI2 programme aims to reduce this number as much as possible. RBI2 extends geographically beyond RBI1 and RCU, into more rural areas best served by wireless technologies.

The RCG is an independent entity that has been established by New Zealand's three MNOs to deliver wireless broadband and mobile services to rural New Zealand.

The RCG network uses 4G multi-operator core network (**MOCN**) technology which involves all three MNOs using the same radio spectrum band for the first time. This means all three providers will share one piece of infrastructure, including the pole, antenna, power, and backhaul.

Spark, Vodafone, and 2degrees have allocated 700MHz spectrum to RCG to enable the 4G LTE (long term evolution) with VoLTE (voice over LTE or high-definition calling) rural network.

RCG is using funding from the government's RBI2 and the Mobile Black Spot Fund as well as contributions from Spark, Vodafone and 2degrees. Accordingly, each RCG site is required to meet government targets of providing fast wireless broadband, connectivity to a tourist location and/or coverage to rural state highways.

Fifteen WISPs are contracted alongside RCG to deliver the RBI2 programme.

94 Ibid.

95 Commerce Commission analysis of June 2021 and June 2022 Crown Infrastructure Partners' Quarterly Connectivity Updates available at: <https://www.crowninfrastructure.govt.nz/about/publications/>

## WiMAX wireless broadband

Figure 27 below shows the regions in which WISPs operate. The WISP networks are more localised than Figure 27 suggests. Even if there are multiple WISPs in a single region, they are unlikely to overlap.

WISPs have contributed to RBI2 improvements (where 7,700 rural premises gained access to improved broadband), but specific numbers are not published.

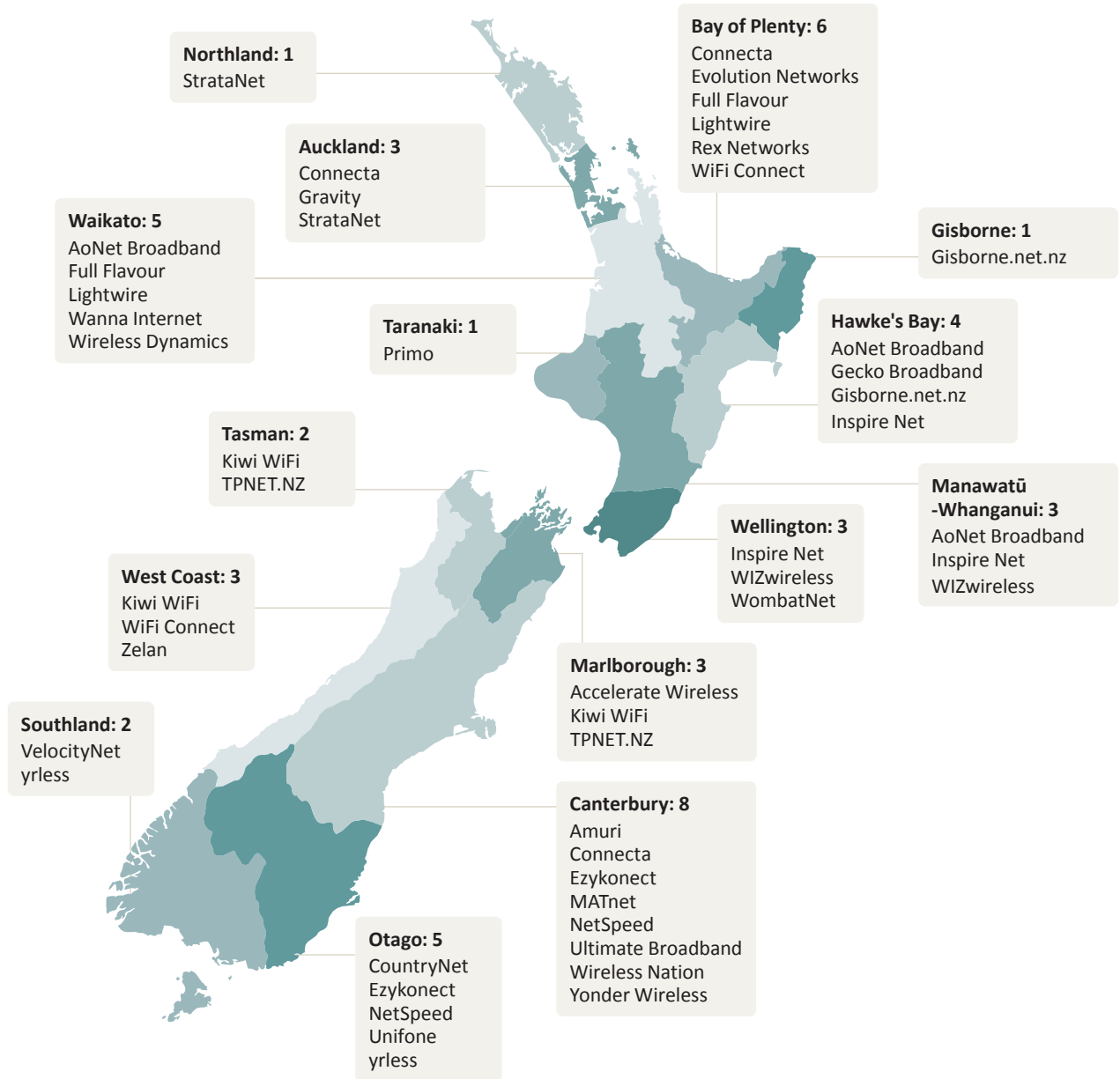
WiMAX, Worldwide Interoperability for Microwave Access, is a telecommunications technology aimed at providing wireless data over long distances in a variety of ways, from point-to-point links to full mobile cellular access. WiMAX is similar to long-range WiFi, but it can enable usage at much greater distances.

WISPs typically use WiMAX networks to deliver their broadband service.

There are 37 WISPs operating in New Zealand. Many operate in a single region and there is limited overlap between their networks. WISP networks are bespoke and, while some WISPs publish coverage maps on their websites, coverage can sometimes only be confirmed with an in-person property visit.



Figure 27: WISPs by region



Source: Commission graphic of WISPA information<sup>96</sup>

96 <https://www.wispa.nz/wispa-nz-members/>

## Geostationary satellite

We are not aware of any changes to Geo satellite coverage to New Zealand in the past year

Geo-stationary (**Geo**) satellites operate approximately 35,000km above the Earth's surface and provide coverage to a specific area. Geo satellites orbit along a path parallel to the Earth's rotation to provide this fixed coverage.

While there are hundreds of Geo satellites orbiting the Earth, there are two operators with satellites oriented towards New Zealand that can offer broadband services – Optus and Kacific. Optus has been providing satellite coverage to New Zealand for a number of years, while Kacific is a newer operator that launched in late 2019.

## Low Earth Orbit satellite

Starlink first became available in New Zealand in March 2021. The beta launch in March 2021 provided coverage to the South Island and selected areas in the North Island. Since then coverage has expanded and Starlink currently provides coverage to most of New Zealand including Stewart Island and the Chatham Islands.

However, there are pockets of New Zealand where coverage does not appear to be available, with Starlink's website noting that services in these areas are "expanding in 2023".<sup>97</sup> Examples include the outskirts of Rolleston and Prebbleton in Christchurch and the areas surrounding Coatesville, Muriwai and Karaka in Auckland.<sup>98</sup>

Low Earth Orbit (**LEO**) satellites operate between 500–1,500km above the Earth's surface. LEO satellites continuously orbit the earth and are not fixed to one point like Geo satellites. To provide continuous coverage to a fixed location on Earth, a constellation of numerous LEO satellites is required.

Currently Starlink is the only LEO satellite constellation providing broadband coverage to New Zealand. Starlink is a constellation of thousands of satellites that orbit at about 550km and cover the entire globe.

97 A map of Starlink coverage can be found at <https://www.starlink.com/map>.

98 As at February 2023.

## Coverage

We have used broadbandmap.nz to produce the following coverage maps of Hunua, Tolaga Bay, Whangaroa and Wallacetown. We selected these rural locations to illustrate the ongoing importance of copper, where in most cases ADSL competes with some form of wireless or satellite broadband.

There are some pockets of fibre coverage in rural areas. These are typically schools, marae or health centres where fibre was rolled out as part of government initiatives.

Broadbandmap.nz is currently the best place to view where different telecommunications technologies are available across New Zealand – fibre, copper (ADSL and VDSL), cable (HFC), wireless (4G and WiMAX broadband). The information is collected and presented independently by Internet New Zealand from a range of providers.

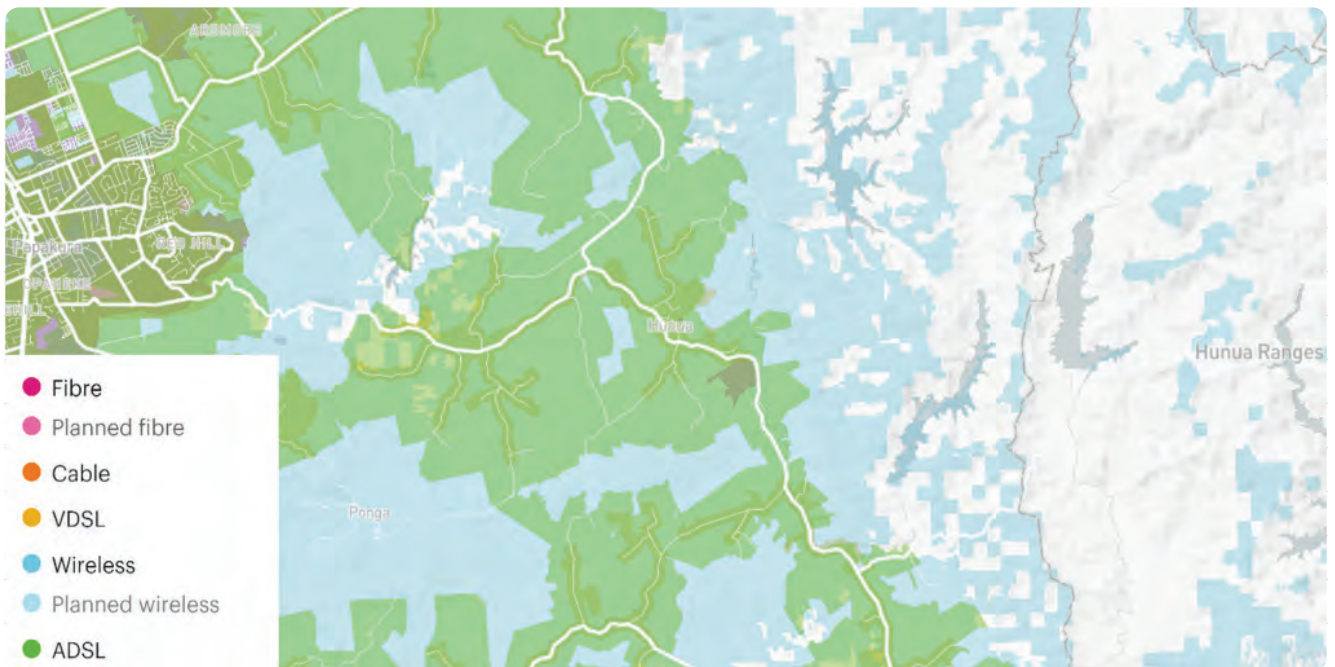
In most cases, wireless coverage is modelled so actual service availability may differ to what is displayed on the coverage map, and not all WISP networks are included in broadbandmap.nz.

Satellite, which tends to market itself as available everywhere, is not included on broadbandmap.nz. Starlink coverage can be checked on the company's website but there may be potential issues where end users are located in areas such as valleys without views of the horizon.

## Hunua

Hunua is a settlement of approximately 1,350 people on the outskirts of South Auckland. Connecta is the WISP operating in Hunua.

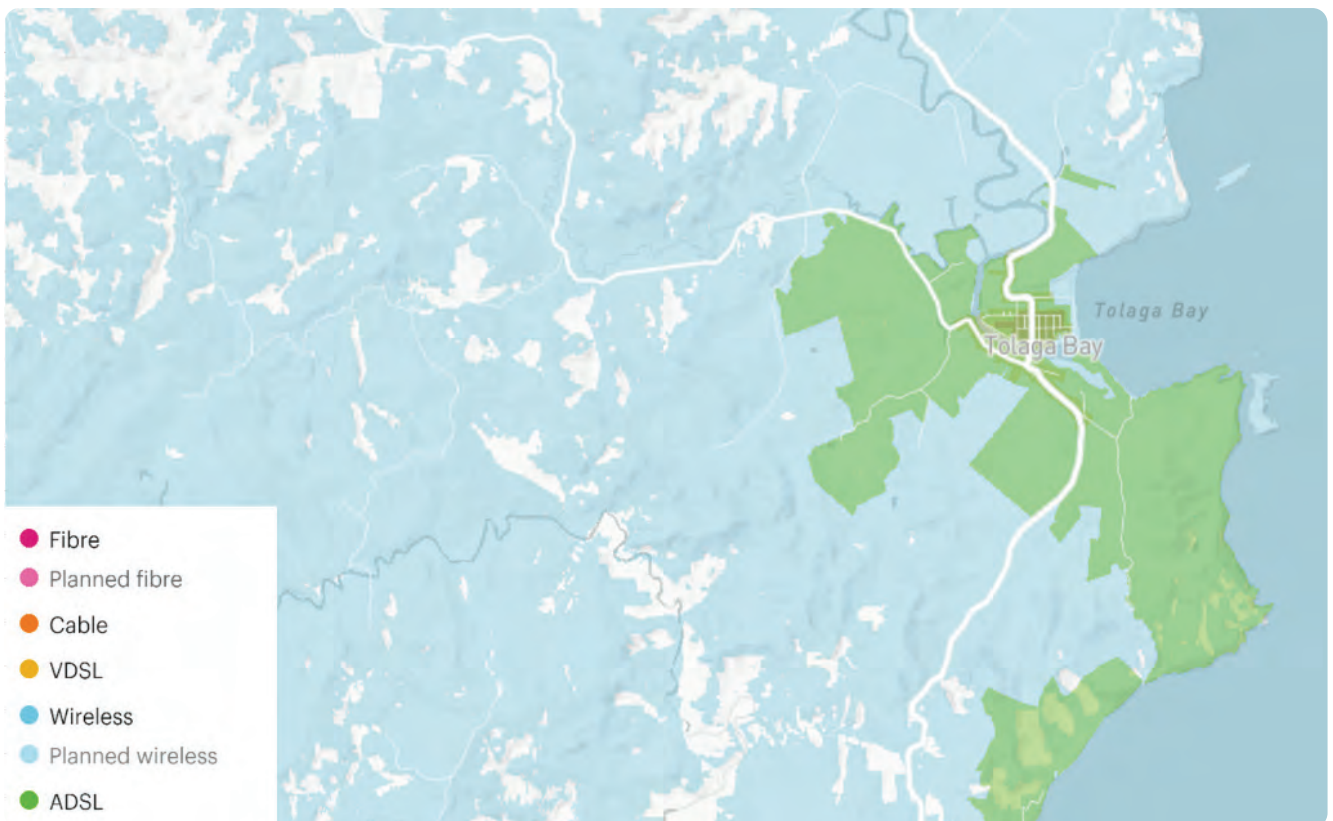
The main township has VDSL available, while premises further out have ADSL, 4G wireless broadband and WISP fixed wireless coverage. However, there are some premises outside the ADSL footprint than will be reliant on either fixed wireless or satellite technologies.



## Tolaga Bay

Tolaga Bay is a small town of approximately 810 people northeast of Gisborne. Gisborne.net is the WISP operating in Tolaga Bay.

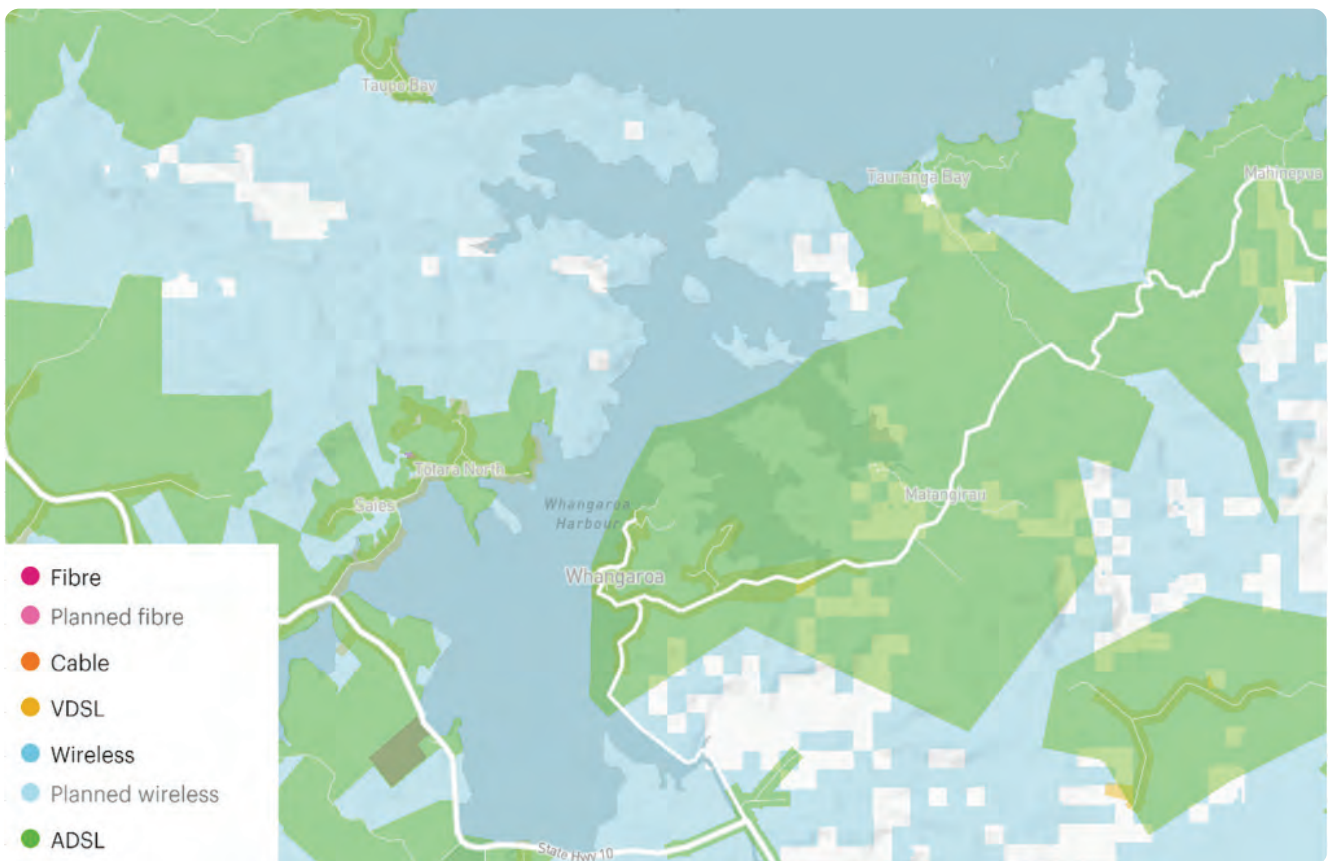
The centre of town has fibre available, and the wider main township has VDSL coverage. Premises further out have ADSL, 4G wireless broadband and WiMAX fixed wireless coverage. However, there are some premises outside the ADSL footprint than will be reliant on either fixed wireless or satellite technologies.



## Whangaroa

Whangaroa is a settlement of approximately 140 people northwest of Kerikeri. There does not appear to be a WISP operating in Whangaroa.

The main settlement has VDSL coverage, while premises further out have ADSL and 4G wireless broadband. However, there appear to be some premises outside the ADSL footprint than will be reliant on either fixed wireless or satellite technologies.

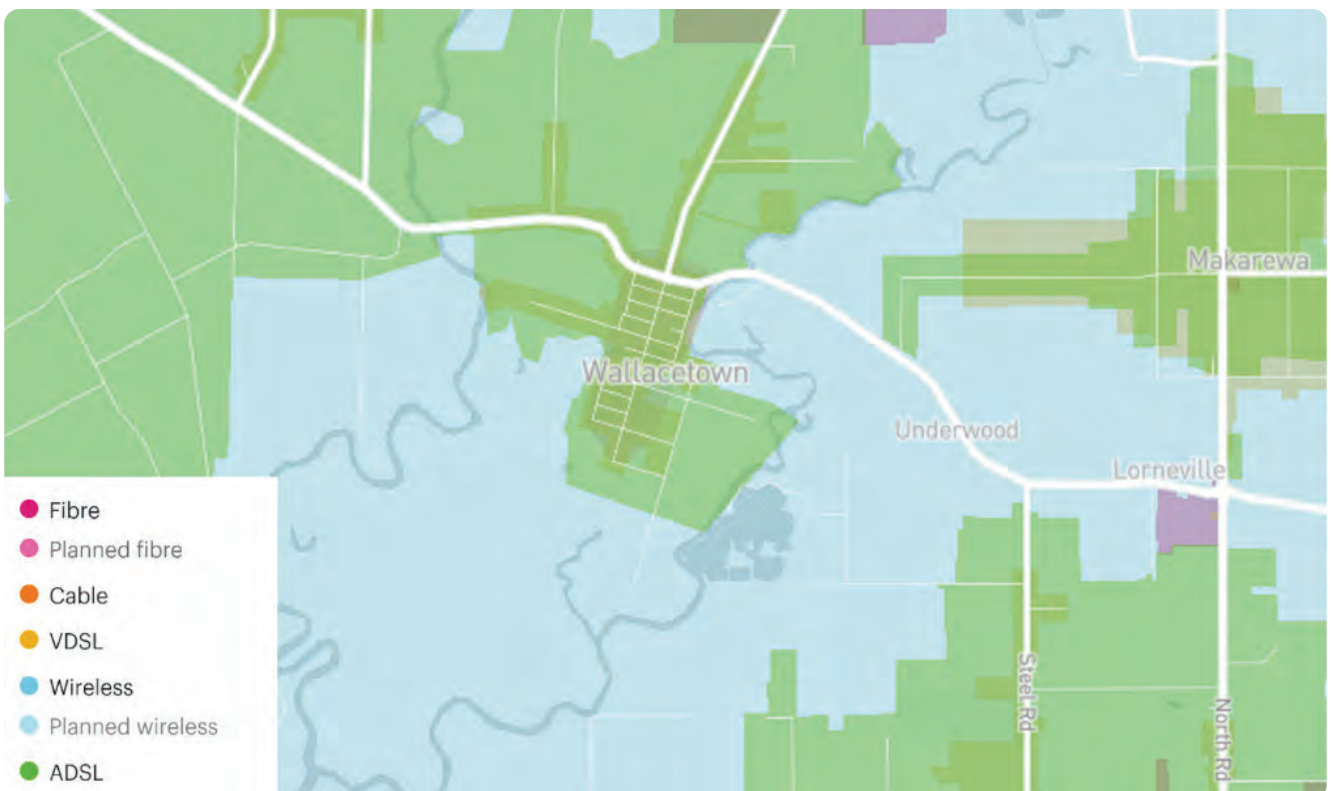




## Wallacetown

Wallacetown is a small town of approximately 720 people west of Invercargill. There does not appear to be a WISP operating in Wallacetown.

The centre of town has fibre available, and the wider main township has VDSL coverage. Premises further out have ADSL and 4G wireless broadband. However, there are some premises outside the ADSL footprint that will be reliant on either fixed wireless or satellite technologies.





## The wholesale market plays an important role in shaping outcomes at the retail level for consumers. Regulation usually applies where competition by itself is insufficient to result in access to infrastructure with natural monopoly characteristics.

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The wholesale market continues to play an important part in the overall market structure of telecommunications in New Zealand. Rural areas have benefited more recently from Crown investment initiatives with associated wholesale obligations.

### 2022 Highlights

- Compared to urban areas, copper connections in rural areas have remained fairly steady with only a small decrease (5%) in connections over the past year, and less than half of rural New Zealand is served by copper technology.

The most popular wholesale services in rural areas are delivered over the copper network to serve the residential broadband market – connecting the home back to a point in the network that houses electronics. However, competition from satellite technology is resulting in connection growth at both the wholesale and retail levels – bypassing the rural copper network completely.

## Wholesale copper bitstream connections

As at 30 June 2022, Chorus sold 142,000 unbundled bitstream access (**UBA**) connections in rural areas, down 5% from a year earlier.

Compared to urban areas, the number of copper connections in rural areas has remained relatively steady, with only a small decrease in connections over the past year.

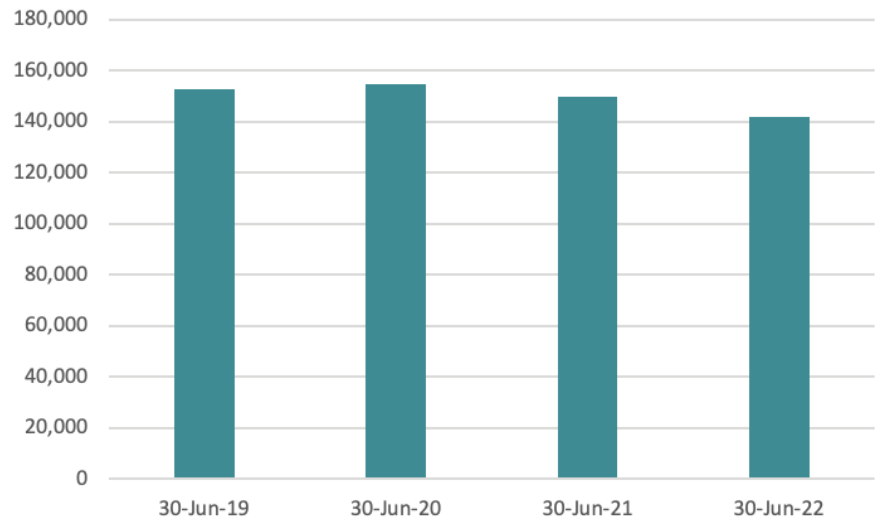
This decrease is likely to be in part due to consumers switching to newer wireless technologies such as Starlink.

*Figure 28: UBA connections in rural areas*

Source: Chorus

As the owner of the copper network, Chorus is required by regulation to offer copper-based bitstream and voice services in rural areas – these wholesale services are respectively known as UBA and unbundled copper low frequency (**UCLF**).

These wholesale services can be purchased by RSPs who use them to construct retail broadband and voice offers.



## Wholesale RBI fixed wireless bitstream connections

We do not currently have information on the number of wholesale RBI fixed wireless bitstream connections.

## Wholesale RBI mobile co-location

We do not currently have information on the take-up of co-location on RBI towers.

## Wholesale satellite connections

The two Geo satellites that cover New Zealand operate as wholesale-only companies and wholesale capacity to a range of RSPs as shown in Table 9. Satellite services are wholesaled on commercial terms.

*Table 9: Wholesale satellite agreements*

Retailer	Satellite operator
Brdy	Kacific
Gravity	Kacific
Farmside (Vodafone)	Optus
Wireless Nation	Optus and Kacific
Woi	Kacific

*Source: RSP websites*

Kacific’s launch in late 2019 provided additional satellite capacity to New Zealand and has seen new satellite RSPs emerge. Some established RSPs have also switched to Kacific’s wholesale service.

Starlink directly retails satellite services to New Zealand but also wholesales satellite access on a limited basis. For example, in November 2022, Netlinkz announced that it had signed a global resale deal with Starlink that included New Zealand.<sup>99</sup> Netlinkz only sells services to business customers.

We receive some limited information on satellite wholesaling through our industry questionnaire, but due to the number of responses and associated confidentiality considerations, we are unable to publish these figures.

<sup>99</sup> Reseller News “Netlinkz connects global reseller deal with SpaceX” (23 November 2022) – see <https://www.reseller.co.nz/article/703527/netlinkz-connects-global-reseller-deal-spacex/>

**Retail telecommunications markets are where combinations of infrastructure and wholesale offers are packaged up by competing firms/brands to be marketed to consumers. The structure of the retail market has the most direct effect in shaping the experiences of consumers.**

The rural retail market structure has been shaped significantly by past wholesale access regulation, and, more recently, government rural broadband programmes, spectrum allocation decisions and the emergence of new satellite offerings.

At a high level there are two distinct types of RSPs operating in the rural broadband market.

- Vertically integrated players who can utilise their own networks to offer services. They may also sell services based on wholesale offerings from Chorus and satellite operators.
- RSPs who only buy wholesale inputs from Chorus, satellite operators or via RBI towers.

## 2022 Highlights

- 49% of rural premises are connected using copper technology, meaning that less than half of rural New Zealand is served by copper technology.
- The largest retail telecommunications companies hold 93% of the rural copper broadband market compared to 84% of the total broadband market.<sup>100</sup>
- Some major RSPs no longer offer copper services in rural areas.
- 16% of all residential broadband connections have a data cap and are likely to be concentrated in rural areas.

<sup>100</sup> Based on connections reported in the annual industry questionnaire. This uses a different methodology to the top four market share of the total broadband market.

## Retail Market Share

### Market concentration

Market concentration, or the extent to which the distribution of the market across firms is limited to relatively few firms, is an important structural characteristic of a market.

Market concentration levels for the rural fixed broadband market appear to be higher than the whole market levels reported in the urban chapter above. For example, we estimate that Spark (including its Skinny sub-brand), Vodafone, 2degrees (including its Slingshot and Orcon sub-brands) and Trustpower hold 93%<sup>101</sup> of the rural copper broadband market but only hold 84% of the total broadband market.

## Retail Offers

RSP offers in the retail telecommunications market are made up of several key aspects.

- What network infrastructure is available (either through ownership or wholesale regulated/commercial access terms). In rural areas, this covers copper, 4G wireless broadband, WiMAX wireless broadband and satellite.
- What service performance characteristics (download/upload speeds, data caps) are offered.

### Network

Table 10: Technology offerings in rural areas by RSPs with a national presence

RSP	Copper	4G wireless broadband	Geo satellite	LEO satellite
Spark	✓ <sup>102</sup>	✓		
Skinny	✓	✓		
Vodafone (Farmside)	✓	✓	✓	
Orcon				
Slingshot	✓	✓		
2degrees	✓	✓		
Trustpower		✓		
Contact Energy	Unclear <sup>103</sup>	✓		
Starlink				✓

As noted in the urban chapter, RSPs no longer offer copper plans to new customers in urban areas. In rural areas, some RSPs still offer copper while other RSPs do not offer any copper plans or only offer copper in limited cases.

Along with these national brands, there are specialist rural providers who offer a range of technology options, including, WiMAX wireless broadband, satellite and copper.

101 Ibid.

102 Only available in areas where unlimited 4G wireless broadband plans are unavailable.

103 Availability of copper (ADSL and VDSL) services can only be confirmed after calling Contact Energy.

## Service Characteristics – Speed

As the owner of the copper network, Chorus is required by regulation to offer copper-based bitstream and voice services in rural areas – these wholesale services are respectively known as UBA and UCLF. These wholesale services can be purchased by RSPs who use them to construct retail broadband and voice offers.

While we see speed differentiation for fibre in urban areas, most of the technologies available in rural areas are simply marketed as full speed – reflecting the speed limitations of the underlying technologies.

*Table 11: Technology with speed tiers*

Technology	Speed tiers
Copper	No – although, where available, VDSL is faster than ADSL
4G wireless broadband	No
WiMAX wireless broadband	Some providers
Geo satellite	Some providers
LEO satellite	No

## Service Characteristics – Data caps

Data caps are used to manage user behaviour in locations where the technology and/or network capacity is more limited.

Responses to our 2022 industry questionnaire, which currently only reports national aggregates, showed that 16% of all residential broadband connections had a data cap.

We estimate that the majority of capped plans are in rural areas. Our analysis of broadband technology types in rural areas (refer Figure 29) shows that 46% of rural broadband connections are either 4G or WiMAX wireless broadband. As the table below shows, these technologies have data caps imposed. Conversely, 4G wireless broadband in urban areas is offered with and without data caps – supporting the finding that data caps are primarily a feature of rural areas.

*Table 12: Technology and data caps imposed*

Technology	Data caps imposed
Copper	No
4G wireless broadband	Yes
WiMAX wireless broadband	Yes – although some unlimited plans available
Geo satellite	Varies – many providers use progressive speed shaping
LEO satellite	No

As noted above, data caps are a common feature of 4G wireless broadband plans and GEO satellite plans.

Table 13: Rural wireless broadband data caps by RSP

RSP	Technology	Data caps options	Unlimited plan available
Spark	Mobile	60GB 200GB 350GB	
Farmside (Vodafone)	Mobile	120GB 200GB	
2degrees	Mobile	170GB	
InspireNet	WiMAX	100GB 200GB 500GB 1500GB 3000GB	
Lightwire	WiMAX	150GB 300GB	✓
Wireless Nation	WiMAX	300GB	

Table 13 shows unlimited data plans are uncommon among rural wireless broadband plans. It also shows that WISPs utilising WiMAX technology offer data caps larger than most MNOs.

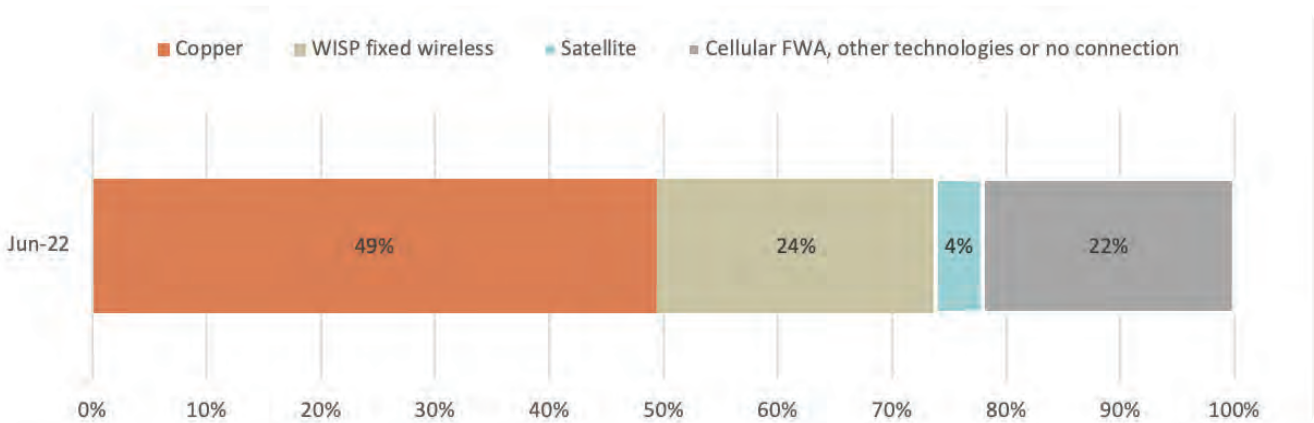
Table 14: Geo satellite data caps by RSP

RSP	Data caps options	Unlimited plan available?
Farmside (Vodafone)	10GB 40GB	✓
Wireless Nation		✓ <sup>104</sup>
Gravity	120GB	✓

Source: RSPswebsites (as at December 2022)

Meanwhile, Table 14 shows the large variety in data caps offered by Geo satellite offerings.

Figure 29: Estimated rural broadband connection by technology type



Source: Commission analysis of CIP, Chorus, and industry questionnaire<sup>105</sup>

104 Wireless Nation’s satellite service is uncapped but service speeds are managed on a three-tier priority basis. First class: up to 100GB. Second class: 101GB to 220GB. Third class: 221GB and above.

105 Total rural broadband connections are assumed to be the number of premises where fibre is unavailable (the inverse of fibre availability reported by CIP). Copper connections are based on Chorus public reporting, WISP connections are based on WISPA public submission and satellite connections are based on industry questionnaire responses. Unaccounted connections are assumed to be 4G wireless broadband connections, other technologies or premises where there is no connection.

## Retail offer share

Figure 29 above shows our estimated split of technology among rural homes and businesses.

As at 30 June 2022, 49% (or 142,000) of rural homes and businesses were connected using copper, meaning that less than half of rural New Zealand is served by copper technology.

According to WISPA, the industry association representing 37 WISPs, there are approximately 70,000 homes and businesses being served by WISPs.<sup>106,107</sup> We estimate that this equates to 24% of rural homes and businesses.

4% of rural homes and businesses were connected using satellite.<sup>108</sup> Satellite connections have increased from 1,900 connections in 2021 to 12,000 connections in 2022 – an increase of 521% in the past year. This puts New Zealand 4th highest in the OECD on a per capita basis for satellite penetration.<sup>109</sup>

22% of rural homes and businesses either use a different technology to connect or have no broadband connection. We expect that the majority who have a broadband connection are being served by 4G wireless broadband.

We cannot confirm the percentage of rural homes and businesses being served by 4G wireless broadband as the information available to us does not yet split between urban and rural. We do know that, across urban and rural, 4G wireless broadband provides connectivity to 16% of Kiwi homes and businesses.

Some homes and businesses will not have a fixed broadband connection but will instead use their phone's mobile data allowance to access the internet. While there has been an increase in unlimited mobile plans in recent years, the speed caps/fair usage restrictions on these plans mean that they are only a viable alternative for people with low usage needs. We are currently unaware of any data on the number of homes and businesses that are mobile-only in New Zealand. We do know that 16% of Australians were mobile-only for internet in 2020.<sup>110</sup>

The remaining rural homes and businesses will not have an internet connection of any kind. The World Internet Project New Zealand found that, in 2021, 5% of people in rural areas do not use the internet.<sup>111</sup> Results from a survey of 1,001 farmers and growers in New Zealand show that 4% of farms and orchards had no internet service in 2022.<sup>112</sup>

106 We have assumed that all of these consumers are in areas without fibre, and therefore in rural areas.

107 WISPA New Zealand "Submission on Review of the Telecommunications Dispute Resolution Scheme" (20 June 2021), para 1b – see [https://comcom.govt.nz/\\_data/assets/pdf\\_file/0033/267369/Wireless-ISP-Submission-on-TDRS-Review-27-September-2021.pdf](https://comcom.govt.nz/_data/assets/pdf_file/0033/267369/Wireless-ISP-Submission-on-TDRS-Review-27-September-2021.pdf)

108 Some smaller satellite resellers are not included in this number for example, Woi, Brdy.

109 With 0.2 satellite connections per 100 inhabitants OECD Broadband Portal 1.2 "Fixed and mobile broadband subscriptions per 100 inhabitants" – see <https://www.oecd.org/digital/broadband/broadband-statistics/>

110 ACMA "Mobile-only Australia: Living without a fixed line at home" (December 2020) – see <https://www.acma.gov.au/publications/2020-12/report/mobile-only-australia-living-without-fixed-line-home>

111 New Zealand Work Research Institute "The World Internet Project New Zealand 2021" – see [https://workresearch.aut.ac.nz/\\_data/assets/pdf\\_file/0007/571129/WIP-2021-Final\\_Nov.pdf](https://workresearch.aut.ac.nz/_data/assets/pdf_file/0007/571129/WIP-2021-Final_Nov.pdf)

112 AgriTechNZ "Baseline of Digital Adoption in Primary Industries" (29 August 2022) page 18 – see <https://agritechnz.org.nz/knowledgehub/download-the-2022-agritechnz-baseline-of-digital-adoption-in-primary-industries-report/>



## Consumers of telecommunications are presented with a wide range of retail offers that are products of the underlying market structure – the network infrastructure, its capabilities, ownership and regulatory settings.

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Whether consumers understand and act on these offers is a product of the information available to them, including through marketing, and their innate preferences and behaviours.

### 2022 Highlights

- Initial survey results show that 33% of rural broadband customers have been with their current provider for more than 5 years.

### Understanding

Copper is still an important technology for consumers in rural areas. As the legacy technology, it is likely the best understood and trusted connectivity option.

However, Starlink, in particular, is increasing choice for consumers and challenging preconceptions about satellite performance, as can be seen in its growth over the past year.

### Switching<sup>113</sup>

The level of switching observed in a market may be indicative of the ability of consumers to act and take advantage of competing offers. It may also indicate the presence of behavioural preferences towards the existing and familiar.

There is no fixed proportion of the market that should be expected to switch. Consumers not switching provider is not necessarily a concern if those consumers are satisfied with their provider and/or do not face significant barriers to switching.

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<sup>113</sup> Rural consumers for the purpose of the survey are those who responded that they lived in a rural or remote area. This may not align with the definition of rural (an area where fibre is unavailable) used elsewhere in this report.

### Time spent with current provider

The initial survey results show that 33% of rural broadband customers have been with their current provider for more than 5 years.

A common reason given by consumers for not switching is that they are satisfied with their current provider. However, consumers tend to compare alternative offers infrequently. As a result, such consumers may be unaware if there are other retail offers available that might better meet their needs.

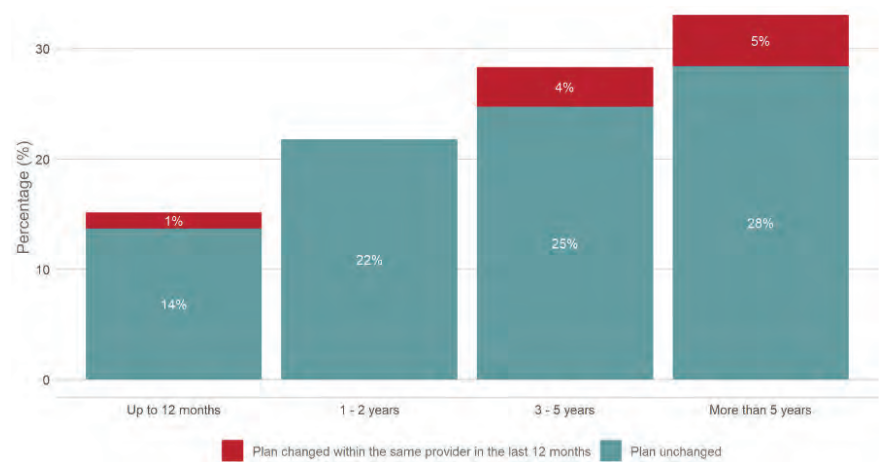
A further reason for not switching provider is that consumers are switching plans with the same provider. As shown in Figure 30 below, approximately one in every six consumers who had been with their current provider for more than 5 years switched plans in the last 12 months.

The results below come from the first 2 months of data collected from our monthly customer satisfaction monitoring survey. Data was collected between November 2022 and January 2023 and includes responses from 120 rural residential broadband customers.

The survey is still in its initial stages and therefore the questions and results may change as the survey matures. However, the Commission considers the early results provide useful insights into the views and behaviours of consumers.

*Figure 31: Time spent with current broadband provider in rural areas*

Source: Customer satisfaction monitoring survey<sup>114</sup>



114 Rounded numbers can generate a rounding difference. 95% confidence interval are 8–23% for “Up to 12 months”, 12%–32% for “1–2 years”, 19%–38% for “3–5 years”, 23%–43% for “More than 5 years”.

## MARKET OUTCOMES PUTANGA MĀKETE

Market outcomes flow from market structure and cover the performance of telecommunications infrastructure and the levels of wholesale and retail pricing through to consumer affordability and satisfaction.

### INFRASTRUCTURE HANGANGA

**Reliable, adaptable, high-performing telecommunications infrastructure is fundamental for positive connectivity outcomes in Kiwi homes and businesses.**

#### 2022 Highlights

- Indicative results show that 4G wireless services in rural areas are slower and experience higher latency than services in urban areas.

#### Performance

Broadband performance is about how much and how quickly data can move between the end user and the online content they are accessing. This data is moving back and forth across telecommunications infrastructure – from the end user’s device to servers around the world. We independently measure all of this through our MBNZ programme.

Our analysis of broadband performance in rural areas covers ADSL, VDSL and 4G wireless broadband. At this stage, we do not have sufficient performance data on WiMAX wireless broadband or satellite broadband in rural areas. This is an area of focus for our MBNZ programme going forward.

To undertake the analysis, we have split our MBNZ results into urban and rural areas. This has resulted in a widening of the confidence intervals (indicated by the light grey lines surrounding each observation in the figures).

International speed comparisons and results of our in-home performance testing can be found in the urban chapter (see pages 47–50).

## Broadband speed

Download and upload speed, as measured in our MBNZ programme, is the speed data travels between the internet and the router in the home.

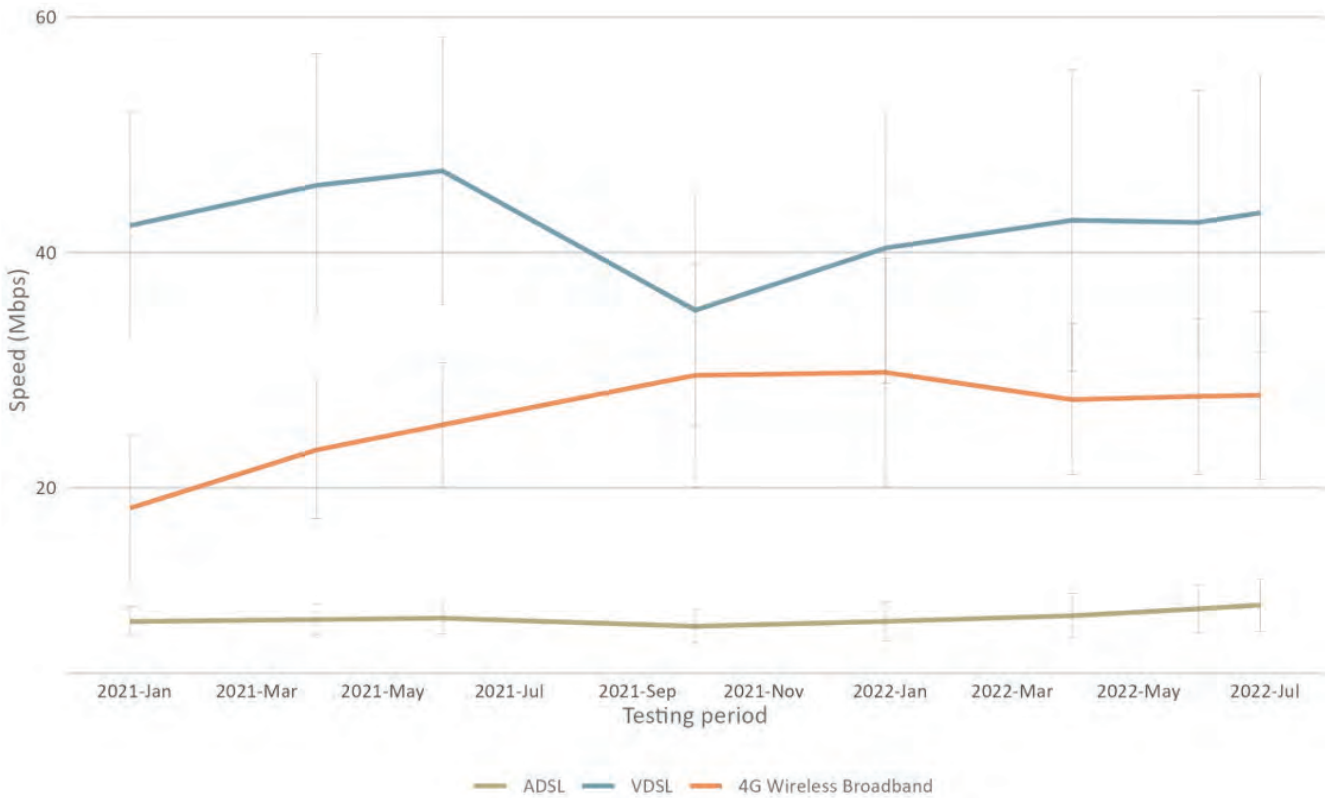
The table here provides a guide on what activities various download speeds allow. Note that other factors such as latency and the location of hosted content will impact the online experience.

Upload speeds should be considered alongside download speeds. The main applications where the impact of upload speed is apparent are file transfers and video conferencing. For example, a lower upload speed will mean that it takes longer for files to sync or email attachments to be applied.

Download speed	Online experience
0–5Mbps	Browse the internet, use search engines, use email, watch videos in lower resolutions (up to 720p). Individual large files take a long time to download (1GB at 5Mbps takes over 25 minutes).
5–40 Mbps	Possibly able to stream up to UHD on one device, or stream HD (1080p) on multiple devices. Able to download large individual files in a reasonable amount of time (1GB at 40Mbps takes just over 3 minutes).
40–100Mbps	Comfortably able to stream UHD without interruption, and have multiple people use streaming services. Able to download larger files, such as smaller modern game releases in a reasonable amount of time (20GB at 100Mbps takes just over 25 minutes).
100–500Mbps	Multiple users can stream UHD video without interruption. Large files download very quickly (1GB at 500Mbps takes 16 seconds). Larger game releases download in a reasonable amount of time (80GB at 500Mbps takes just under 22 minutes).
500–1,000Mbps	Able to download even the largest video games very quickly (120GB at 1,000Mbps takes 16 minutes).

Figure 31 below shows the average rural download speeds for the technologies measured by the MBNZ programme over the past 18 months.

Figure 31: Average rural download speeds (24h)



Source: Commission analysis of MBNZ data<sup>115</sup>

The changes in download speeds during the period are unlikely to have been noticed by consumers.

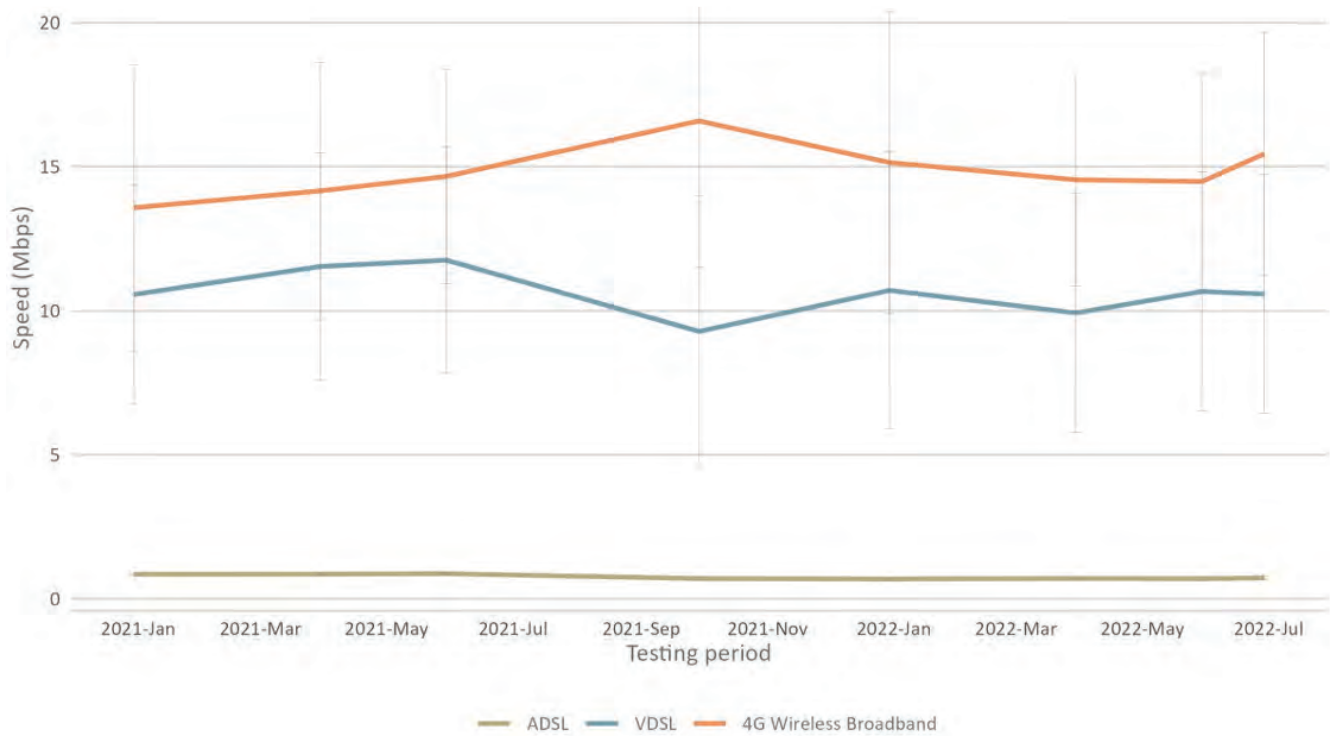
Based on June 2022 testing, rural download speeds for ADSL (10Mbps) and VDSL (43Mbps) are the same as copper download speed testing in urban areas. However, download speeds for rural 4G wireless broadband (28Mbps) is slower than in urban areas (49Mbps). These results should be treated as indicative based on the associated confidence intervals.<sup>116</sup>

115 The grey lines above and below each point show the 95% confidence intervals.

116 Based on results from 52 4G wireless broadband volunteers. Volunteers were split based on our urban/rural definitions, which results in 23 urban volunteers and 29 rural volunteers. The testing occurred in the period 15 June to 14 July 2022.

Figure 32 below shows the average rural upload speeds for the technologies measured by the MBNZ programme over the past 18 months.

Figure 32: Average rural upload speeds (24h)



Source: Commission analysis of MBNZ data<sup>117</sup>

Based on June 2022 testing, rural upload speeds for ADSL (1Mbps) and VDSL (11Mbps) are the same as copper upload speed testing in rural areas. However, upload speeds for rural 4G wireless broadband (15Mbps) are slower than in urban areas (21Mbps). These results should be treated as indicative based on the associated confidence intervals.<sup>118</sup>

Overall, ADSL, VDSL and 4G wireless broadband speeds have remained fairly steady across our reporting periods, with the small changes for VDSL and 4G wireless broadband unlikely to be noticeable by consumers.<sup>119</sup> The above results indicate that consumers on ADSL are unlikely to be able to do much more than basic browsing, whereas VDSL and 4G wireless broadband supports a fuller online experience for a smaller household – noting the material difference in latency observed below between the technologies, which can affect some online activities.

117 The grey lines above and below each point show the 95% confidence intervals.

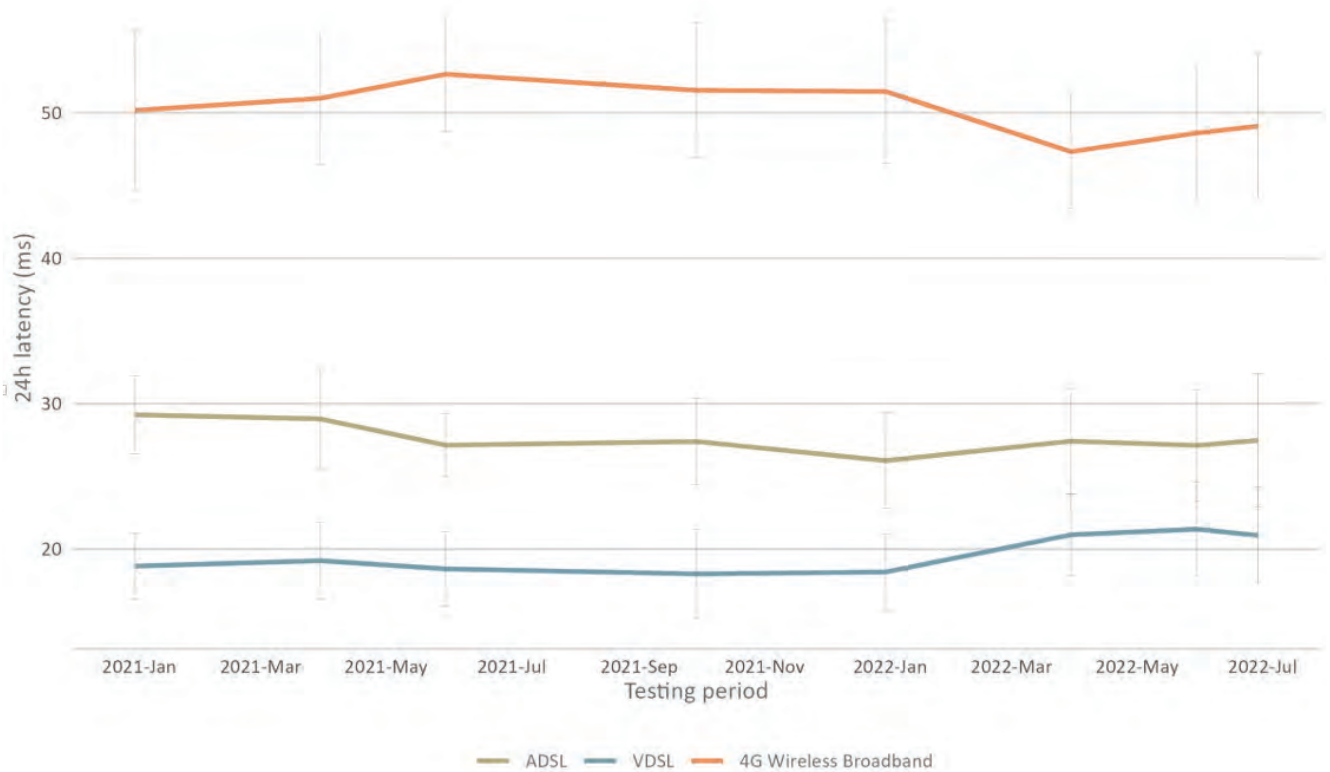
118 Based on results from 52 4G wireless broadband volunteers. Volunteers were split based on our urban/rural definitions, which results in 16 urban volunteers and 36 rural volunteers. The testing occurred in the period 15 June to 14 July 2022.

119 MBNZ "Spring Report 2022", page 8 – see [https://comcom.govt.nz/\\_data/assets/pdf\\_file/0028/295804/MBNZ-Spring-Report-2022-27-October-2022.pdf](https://comcom.govt.nz/_data/assets/pdf_file/0028/295804/MBNZ-Spring-Report-2022-27-October-2022.pdf)

## Latency

Figure 33 below shows the average rural latency for the technologies measured by the MBNZ programme over the past 18 months.

Figure 33: Average rural latency (24h)



Source: Commission analysis of MBNZ data

Figure 33 shows variability in latency values over the year. These changes are immaterial and not noticeable to consumers. However, the latency differences between the technologies are material, which depending on the application, is likely to deliver different levels of consumer experience.

Based on June 2022 testing, rural latency for ADSL (27ms), VDSL (21ms) and 4G wireless broadband (49ms) have comparable latencies to their urban equivalents. These results should be treated as indicative based on the associated confidence intervals.<sup>120</sup>

Latency is the delay an internet connection experiences, with lower values being better than higher values.

For someone playing an online game, higher latency introduces more delay between the time that they press a button and that action being registered by other players. Higher latency can also cause video calls to jump or drop out more often.

<sup>120</sup> Based on results from 52 4G wireless broadband volunteers. Volunteers were split based on our urban/rural definitions, which results in 16 urban volunteers and 36 rural volunteers. The testing occurred in the period 15 June to 14 July 2022.

## Gaming

As gaming is so popular in New Zealand (with 73% of Kiwi’s playing video games in 2021), we measure the latency to 14 popular game servers as part of our MBNZ programme.<sup>121</sup>

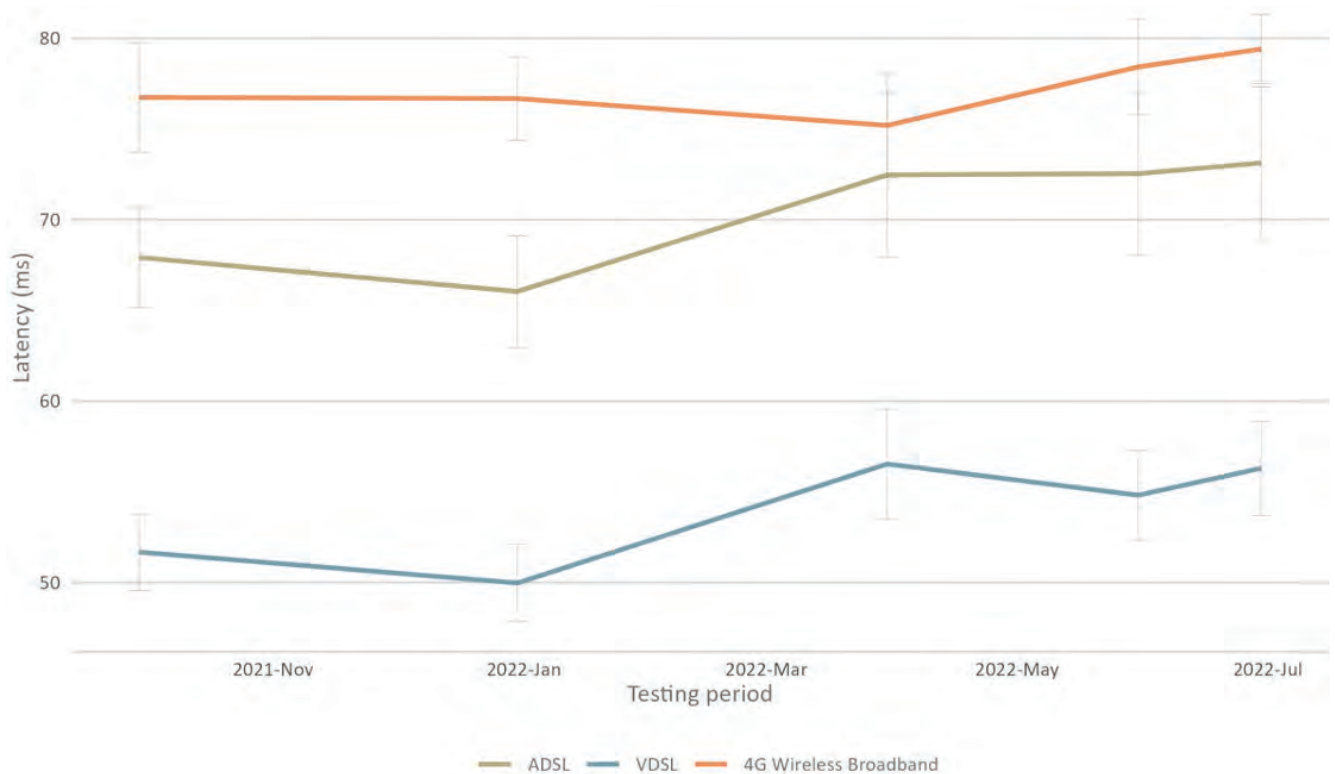
Nine of the 14 games we test are hosted in Australia.<sup>122</sup> Based on the above results, it is unlikely that copper or 4G wireless broadband in rural areas can support the latency required to have an enjoyable experience for low latency-dependent games such as Fortnite.

Ultimately, consumers want an unconstrained experience online. Like video conferencing, gaming is an activity where real-time response matters. Real-time response requires low latency.

Aside from the technology used to connect, the location of a game’s server has a large impact on the latency experienced by players. As such we have split results based on server location.

Online gaming will start to stutter and lag when latency increases beyond 50ms or 100ms. Some games will simply refuse to admit players who have triple-figure latency because this will ruin the game for everyone else.

Figure 34: Average rural latency for games hosted in Australia



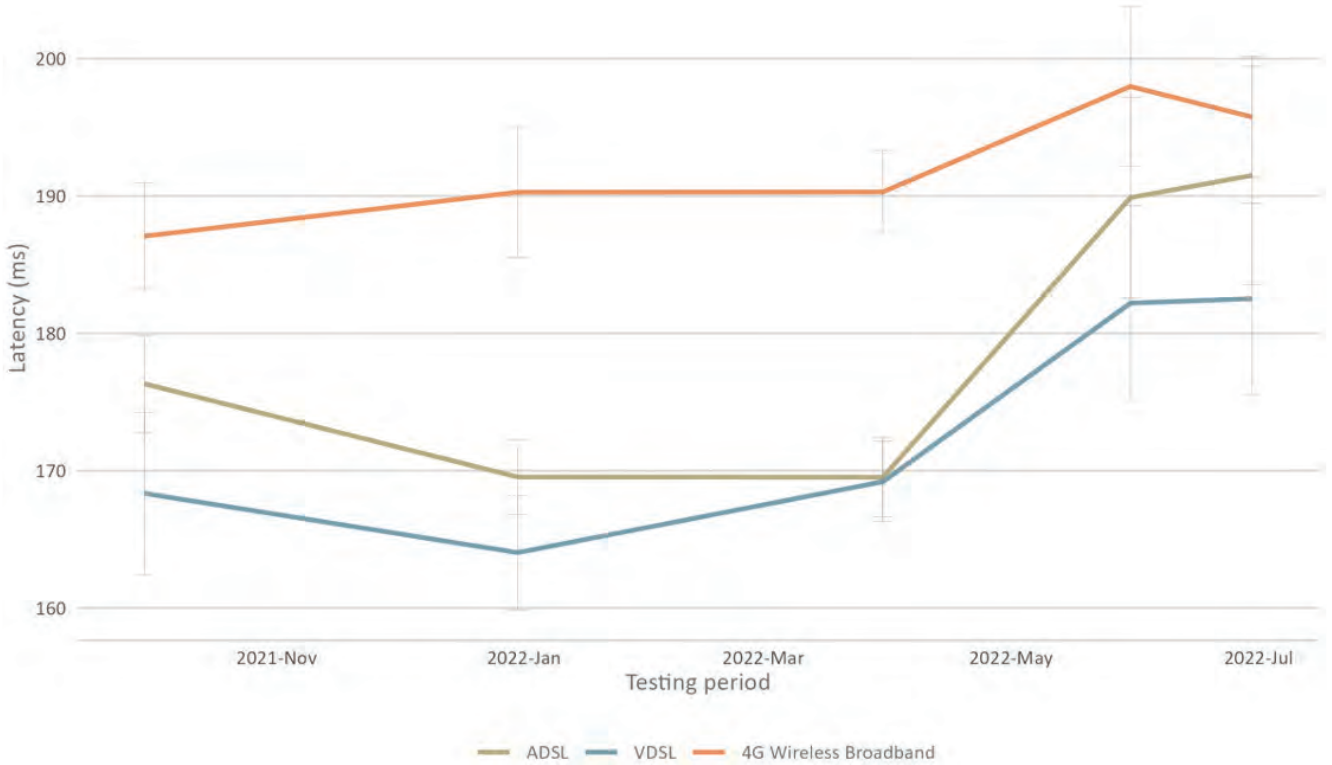
Source: Commission analysis of MBNZ data

121 IGEA “Digital New Zealand 2022”, page 6 – see <https://igea.net/wp-content/uploads/2021/10/DNZ22-Report-Final-25-10-21.pdf>

122 Apex Legends, Dota 2, FIFA, Fortnite, League of Legends, PUBG, Rainbow Six Siege, Rocket League and Valorant game servers are hosted in Australia.



Figure 35: Average rural latency for games hosted in North America



Source: Commission analysis of MBNZ data

Four of the 14 games we test are hosted in North America.<sup>123</sup> Based on the above results shown in Figure 35, it is unlikely that ADSL, VDSL or 4G wireless broadband in rural areas can support any low-latency-dependent gaming experience.

123 Among Us, Hearthstone, Heroes of the Storm and StarCraft II game servers are hosted in North America.

## Netflix

In 2021, Netflix introduced a change to the way its HD and UHD video is encoded. Video is now delivered at a variable bitrate depending on the complexity of the video being transmitted. This means that a programme with fewer colours and less movement, like a cartoon, will be encoded at a lower bitrate than a fast-paced action film.

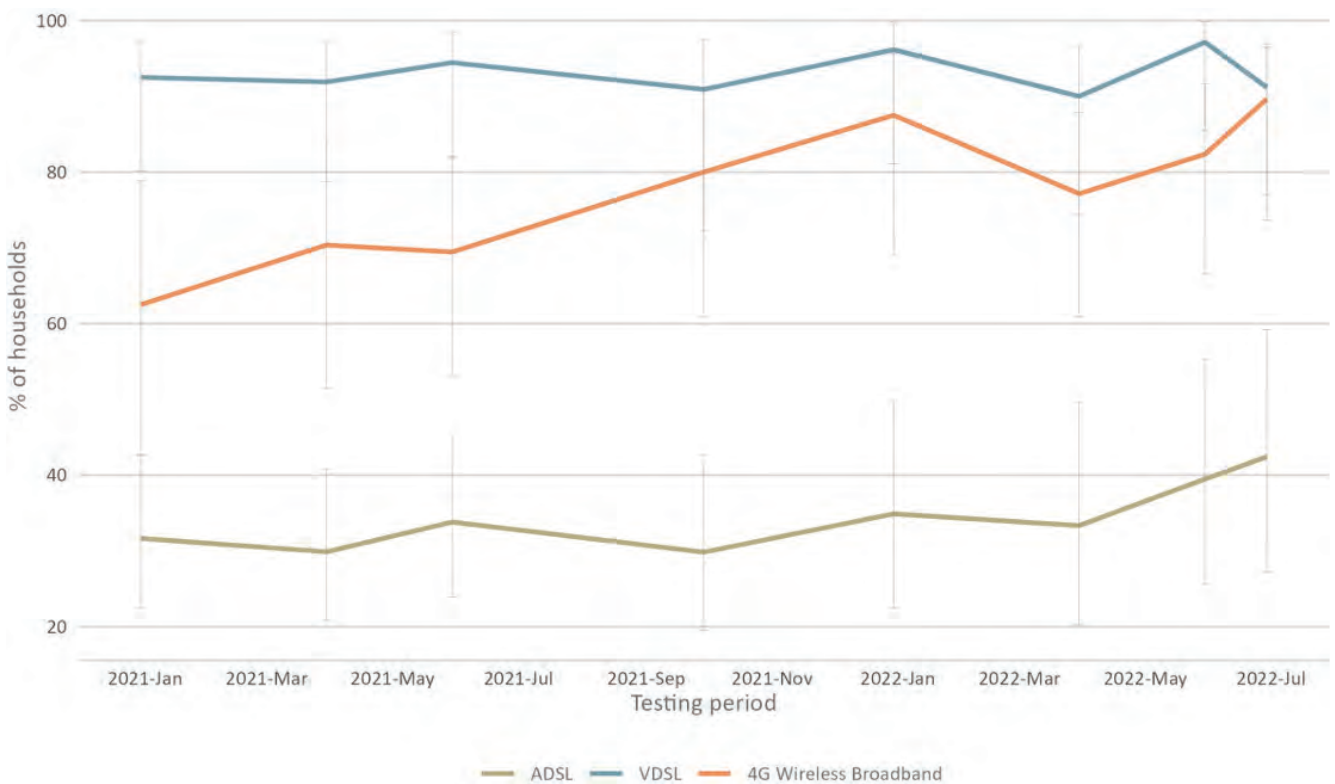
We can see some slight improvements in the percentage of ADSL and 4G wireless broadband households able to stream one UHD Netflix stream in Figure 36.

Netflix is the most popular subscription streaming service in New Zealand with 40% of Kiwis aged 15 and older using the service in 2021. As such, the ability to stream Netflix in UHD is an experiential measure included in MBNZ.

Note that some aspects of performance are outside the control of infrastructure owners for example, Netflix encoding choices/policies.

Our MBNZ results reflect not just the performance of the infrastructure and RSPs but also any changes Netflix makes in the background – in particular, video and audio encoding, which is the process of compressing files (making them smaller to download) without compromising the quality.

Figure 36: Netflix in rural areas – ability to stream one UHD stream



Source: Commission analysis of MBNZ data

## WiMAX and satellite performance

Currently, we do not have sufficient volunteers in our MBNZ programme to report on WiMAX wireless broadband or satellite broadband plans.<sup>124</sup> However, Ookla found that average download speeds on Starlink in New Zealand of 106Mbps, average upload speeds of 12Mbps and average latency of 78ms.<sup>125</sup>

## Reliability

### Copper Bitstream (UBA)

ADSL and VDSL connections are regulated services known collectively (at the wholesale level) as UBA. The UBA service includes two key components of Chorus-owned electronics, which are often housed in different locations.

There is a connection between these two locations that is called the local aggregation path (LAP). Like a motorway, the LAP can become congested as more end users go online. Congestion is measurable and is referred to as the utilisation rate.

The higher the utilisation rate, the more chance end users may experience poor broadband performance. UBA regulations require that the utilisation must not exceed 95% for any 5-minute period. However, there is a carve-out for Chorus's older legacy equipment.

As at August 2022, there are 47 rural locations where utilisation peaked between 95% and 100%. These locations (known as cabinets) are exclusively where older equipment is being used, and end users will be experiencing poor broadband performance.

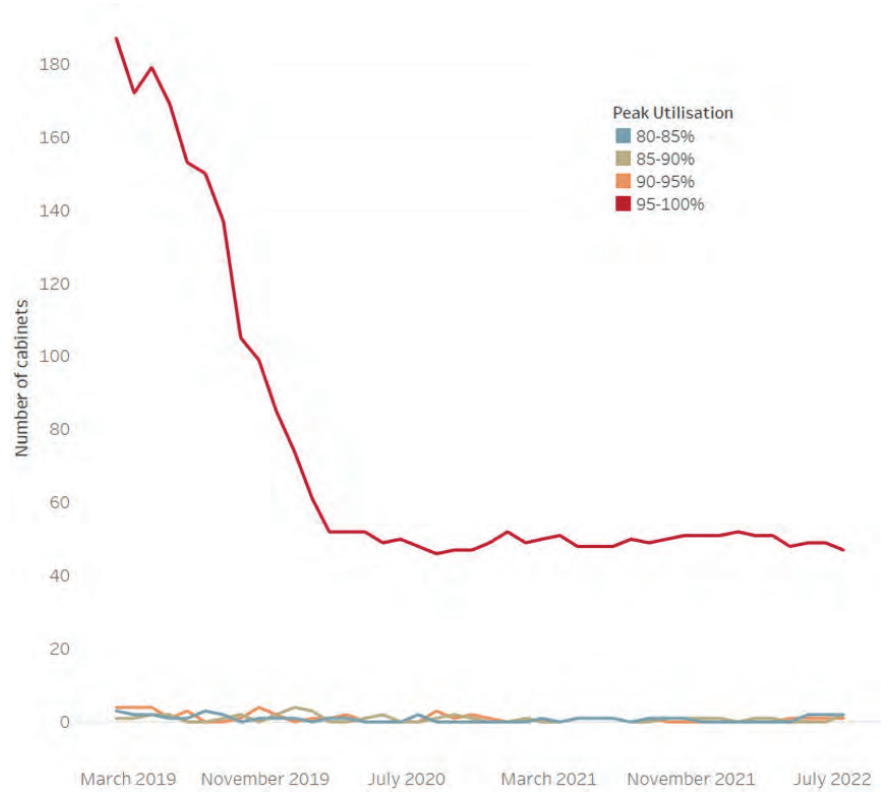
For context, Chorus either installed or upgraded over 1,200 cabinets as part of the RBI programme. These cabinets are represented in the peak utilisation measures below 95%, which Figure 37 shows rarely exceeds 80% utilisation.

<sup>124</sup> We are looking for volunteers for our MBNZ programme, in particular fixed wireless and satellite volunteers. To volunteer, go to [www.measuringbroadbandnewzealand.com](http://www.measuringbroadbandnewzealand.com).

<sup>125</sup> Ookla "Starlink slowed in Q2, competitors mounting challenges" (20 September 2022) – see <https://www.ookla.com/articles/starlink-hughesnet-viasat-performance-q2-2022>. Note that Ookla testing methodology differs from our MBNZ programme's router-based approach. Ookla tests speeds at the consumer device, which is affected by a range of factors in the home (including WiFi).

Figure 37: LAP utilisation of copper cabinets

Source: Chorus 30R reports<sup>126</sup>



126 Clause 18.1.1 of Schedule 4 of the UBA standards terms determination requires Chorus to report the peak utilisation of LAPs used to provide a UBA service – see [https://comcom.govt.nz/\\_data/assets/pdf\\_file/0031/195493/UBA-standard-terms-determination-Sch-4-Operations-manual-2-15-December-2019.pdf](https://comcom.govt.nz/_data/assets/pdf_file/0031/195493/UBA-standard-terms-determination-Sch-4-Operations-manual-2-15-December-2019.pdf)

## Wholesale-level pricing plays an important part in shaping retail-level pricing for consumers. Regulatory oversight or obligations commonly apply at this level of the market.

### 2022 Highlights

- Copper wholesale prices increased by 5% during the year.

### Copper pricing

Table 15: Chorus wholesale prices

Plan	2021	2022	% change
Copper bitstream	\$42.97	\$45.09	4.93%

Source: Chorus<sup>127</sup>

In December 2021, Chorus increased the wholesale price for its copper bitstream products following the annual legislated CPI price adjustments to Chorus’s regulated copper services.

Commenting on copper price increases, Chorus noted that, due to the declining number of copper customers, the cost to maintain and operate the copper network is increasing.<sup>128</sup>

### Wholesale RBI fixed wireless bitstream pricing

We do not currently have information on the pricing of wholesale RBI fixed wireless bitstream services.

### Wholesale RBI mobile co-location pricing

We do not currently have information on the pricing of wholesale RBI mobile co-location services.

### Wholesale satellite pricing

We do not currently have information on the pricing of wholesale satellite services and note that these services are provided on a commercial basis.

127 Chorus FY22 Full Year Results “Investor presentation” slide 37 – see <https://company.chorus.co.nz/reports>

128 Chorus “Annual adjustment for copper services and some co-location charges” (9 November 2022) – see <https://sp.chorus.co.nz/product-update/annual-adjustment-copper-services-and-some-co-location-charges-0>

**Retail pricing outcomes are based on the underlying infrastructure or wholesale costs but also take into account competitive dynamics, relativities between offers and consumer demand.**

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## 2022 Highlights

- There is a large variance in the copper prices offered by major RSPs, with the most expensive service costing \$32 per month more than the cheapest.
- The price for a basic copper service in New Zealand is \$20 per month more expensive than the OECD average.

## Prices

We use Teligen's global price benchmarking database for some aspects of our pricing analysis.

Teligen's benchmarks cover plans from incumbent providers who serve at least 70% of customers in a given country. In the case of New Zealand, Spark, Vodafone, Orcon and Slingshot are the brands included. We are working with Teligen to have 2degrees added to the benchmark going forward.

## Wholesale flow-through

Table 16: Retail copper broadband monthly rental prices in rural areas (excluding landline)

Plan	December 2021	December 2022
Spark	\$100	\$105
Vodafone	\$89	\$85
2degrees	\$91	\$94
Slingshot	\$90	\$85
Skinny	\$73	\$73

Source: RSPs websites

There is a large variance in the broadband prices offered by major RSPs in rural areas. The gap between monthly wholesale (UBA) and retail prices ranges from \$28 for Skinny through to \$60 for Spark. A landline can be purchased for an additional \$10/month, except from Skinny, which does not offer the service.

Spark, historically the rural incumbent and the provider of last resort, is charging more than double the retail margin of its subsidiary brand (Skinny) – this works out to be an additional \$384 per year. The landline service, an important feature in rural areas where mobile coverage can be patchy, is likely to reduce take-up of Skinny’s broadband offer in rural areas.

The wholesale price of copper has increased by 4.93% over the year. Some RSPs appear to have passed on price increases (such as Spark), while other RSPs have held or decreased prices.

## Wireless broadband (4G and WiMAX) prices

Prices for rural 4G wireless broadband typically range from \$85 to \$156 per month depending on the data cap. Prices for WiMAX wireless broadband offered by WISPs typically range from \$70 for capped plans up to \$200 for unlimited plans.

Installation costs for wireless broadband range between \$0 and \$490 depending on whether the customer needs to install an antenna, the complexity of the installation and the term of the plan.

## Satellite (Geo and LEO) prices

Prices for Geo satellite plans vary. The most basic plans that provide speeds of 10Mbps and limit data usage cost \$50–\$60, while higher speed plans that allow for unlimited usage cost \$150–\$200.

Standard LEO (Starlink) costs \$159 per month for unlimited usage, while its business-grade service costs \$840 per month.<sup>129</sup>

Installation costs for satellite broadband range from \$495 to \$1,999. Some RSPs offer longer-term plans, which reduce the installation cost for the customer. However, customers will be liable for an early termination fee if they want to exit their plan before the term ends.

129 NZ Herald “2degrees named first local reseller for Starlink Business, sends kits to emergency services” (21 February 2023) – see <https://www.nzherald.co.nz/business/2degrees-named-first-local-partner-for-starlink-business-sends-kits-to-emergency-services/37NNKJU4KNDUTN6G5CXDX6FDCl/>

## Urban vs rural prices

4G wireless broadband and satellite-based broadband are the two technologies that are available in both urban and rural areas. Satellite pricing does not vary based on geography, but 4G wireless broadband does.

Rural wireless broadband is more expensive than urban wireless broadband, particularly for higher data cap plans, as can be seen in Table 17 below.

*Table 17: Rural vs urban 4G wireless broadband prices*

RSP	Plan	Monthly cost	Plan	Monthly cost
<b>Spark</b>	Rural 4G Wireless 350GB	\$156 <sup>130</sup>	4G Wireless (Unlimited)	\$60
<b>Farmside (Vodafone)</b>	Rural 4G Wireless 200GB	\$156	4G Wireless (Unlimited)	\$55
<b>2degrees</b>	Rural 4G Wireless 170GB	\$85	4G Wireless (Unlimited)	\$60

Source: RSP websites (as at December 2022)

While urban end users enjoy unlimited data use, rural end-users are paying Spark \$0.45/GB, 2degrees \$0.50/GB and Farmside \$0.78/GB.

<sup>130</sup> Price increases to \$166 if an antenna is required.



## International price comparison

To get an indication of how New Zealand broadband prices compare to those overseas, we compared Teligen’s prices of the cheapest benchmark plan on offer in New Zealand against the cheapest benchmark plan available in OECD countries for a basic copper service.<sup>131</sup>

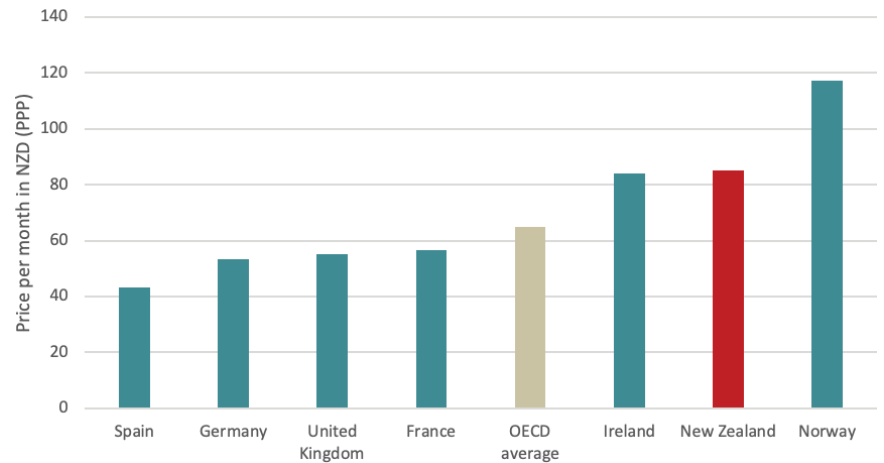
The price for a broadband-only copper service in New Zealand is \$20 more expensive than the OECD average. The price differences between comparator countries are due to a range of factors. Copper remains the prevalent broadband technology in some comparator countries (such as the UK) but has been replaced by fibre in others (such as Spain).<sup>133</sup>

## Subsidised plans

See the urban chapter (page 61) for detailed analysis.

Figure 38: Teligen copper price benchmarks – September 2022<sup>132</sup>

Source: Tech Insights



131 Unlimited usage broadband-only copper service providing speeds of at least 5Mbps.

132 Japan and United States are not displayed as no copper services meeting the specifications were included in Teligen’s benchmark.

133 Refer <https://www.oecd.org/digital/broadband/broadband-statistics-update.htm>

## The market outcomes produced through infrastructure, wholesale and retail ultimately come down to consumers' usage and their overall satisfaction with the connectivity provided.

### 2022 Highlights

- The percentage of household income required to purchase high-speed broadband in rural areas is higher than urban areas.
- Initial survey results show that rural broadband customers are most satisfied with speed and stability and least satisfied with pricing.
- Among all farmers and growers, those using copper technology are the least satisfied with their service, with 73% of them rating their internet service as poor or average.

### Affordability

Affordability is a relative concept that does not lend itself to precise indicators. Affordability depends not only on price and income but also on other competing spending choices available.

Our 2022 analysis simply compares the average available copper and Starlink prices with the distribution of average net income across the regions of New Zealand.

The affordability analysis used approximated 2022 average net income and the annual average retail broadband prices for copper (\$1,020) and Starlink (\$1,908) as at September 2022. Average net income was derived by adjusting average gross income data from the 2018 Census by the labour cost index and applicable tax rates.

Census data was sourced from Statistics New Zealand and was mapped on an aggregated meshblock level. These meshblocks were then compared against fibre availability information contained in the Commission's SFA map.

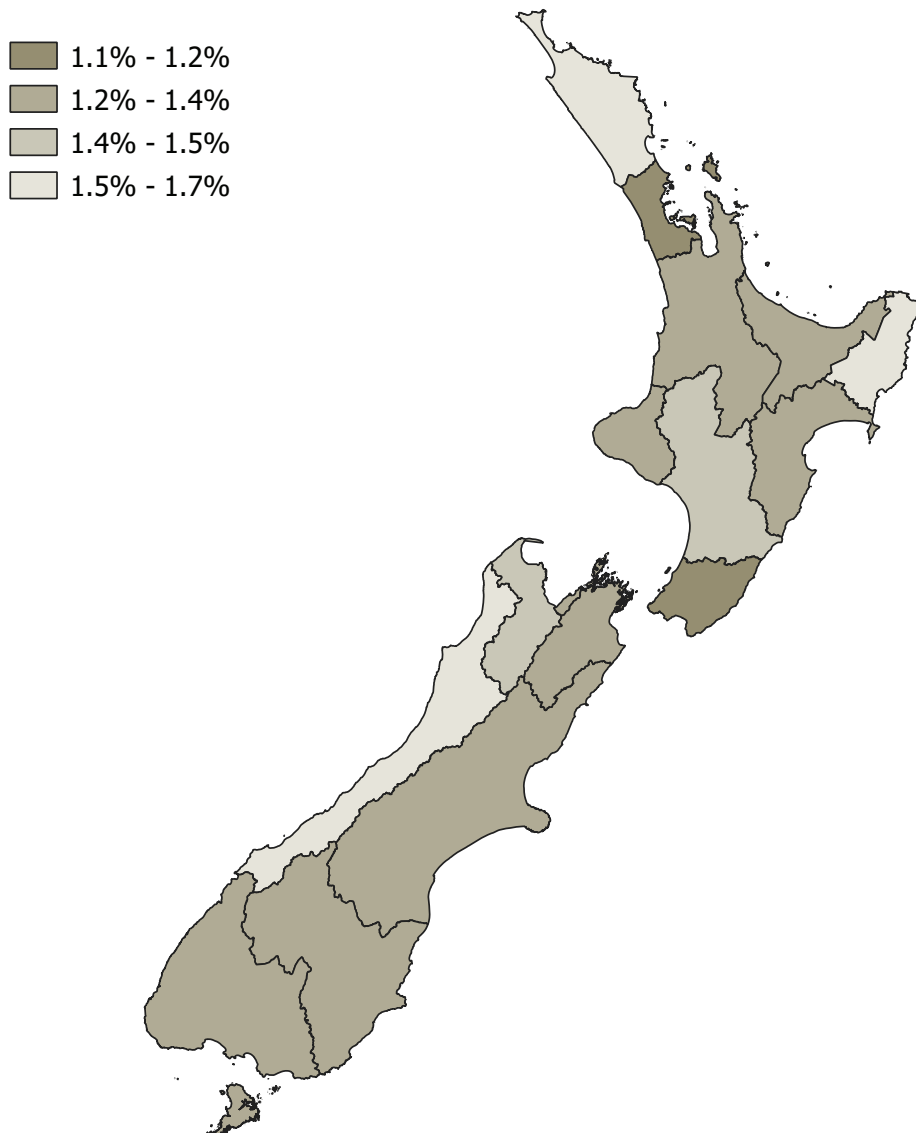
If at least one property from the meshblock was within an SFA, the entire meshblock was treated as a fibre area.

For readability, these meshblocks where fibre is unavailable have been aggregated to the regional level to produce the map and figures presented below.

Figure 39 and 40 below estimate the affordability of two rural broadband products – copper for low-usage households and a Starlink satellite service for households requiring faster download speeds.<sup>134</sup>

The percentage of household income required to purchase copper ranges from 1.1% in Auckland to 1.7% in the West Coast. Meanwhile, the percentage required to purchase a Starlink satellite service ranges from 2.0% in Auckland to 3.1% in the West Coast.

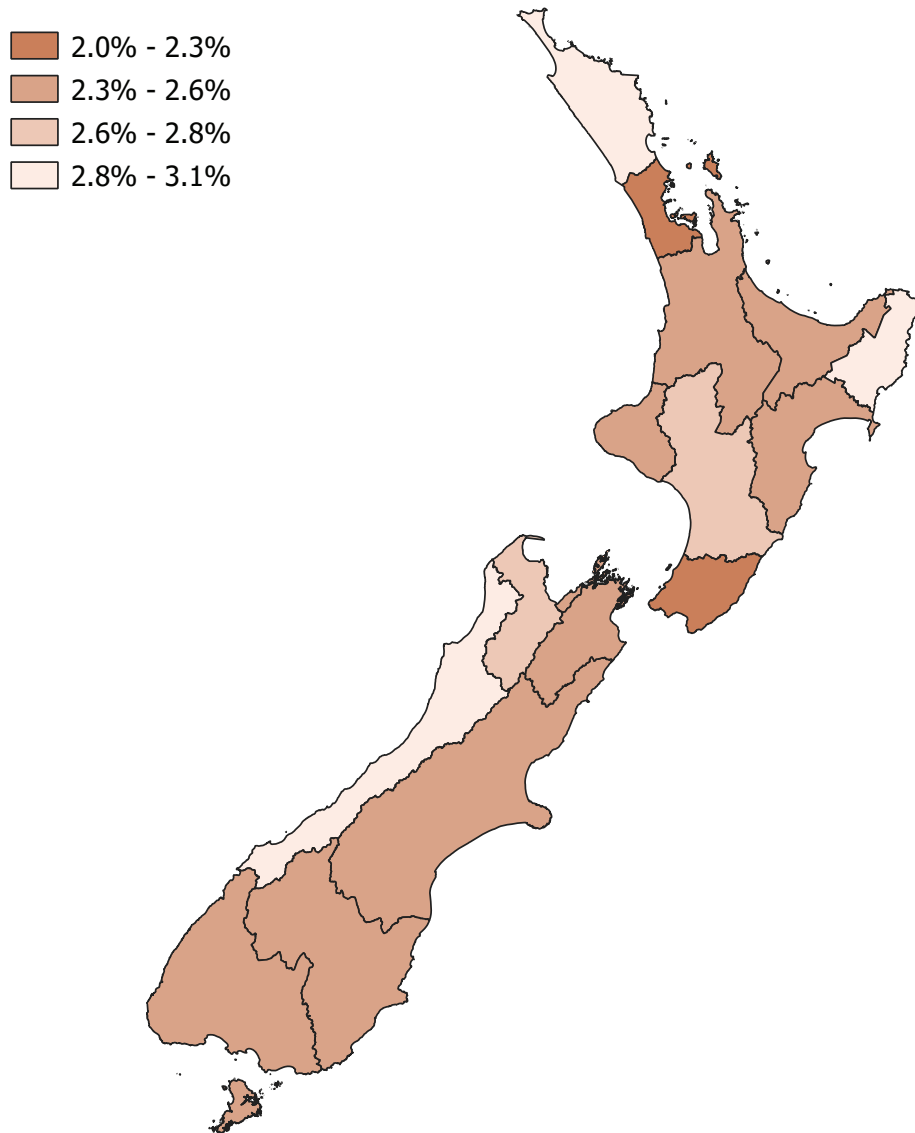
Figure 39: Percentage of household net income to purchase basic rural broadband by region



Source: Commission analysis of Statistics New Zealand data

<sup>134</sup> Installation costs for Starlink have not been factored in.

Figure 40: Percentage of household income to purchase high-speed rural broadband by region



Source: Commission analysis of Statistics New Zealand data

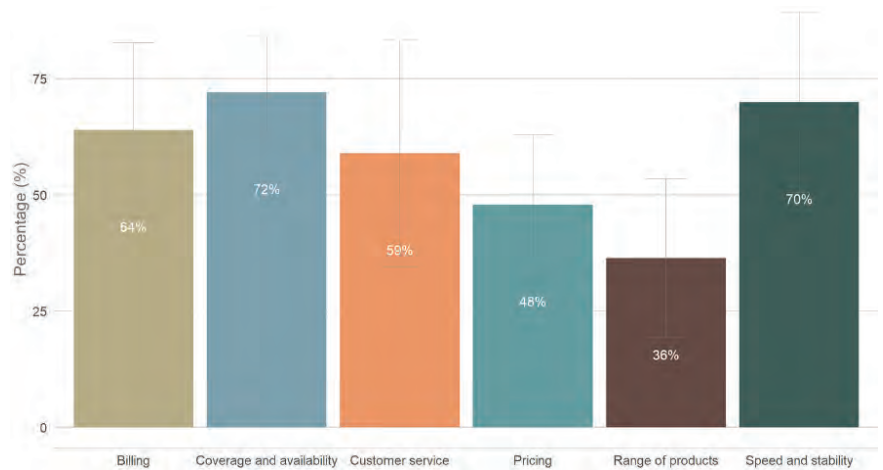
## Satisfaction

### Customer Satisfaction Monitoring Survey

Initial results from our customer satisfaction monitoring survey found that 77% of rural broadband customers are satisfied with their broadband service. The survey also asked rural broadband customers to rate their satisfaction with various service areas.

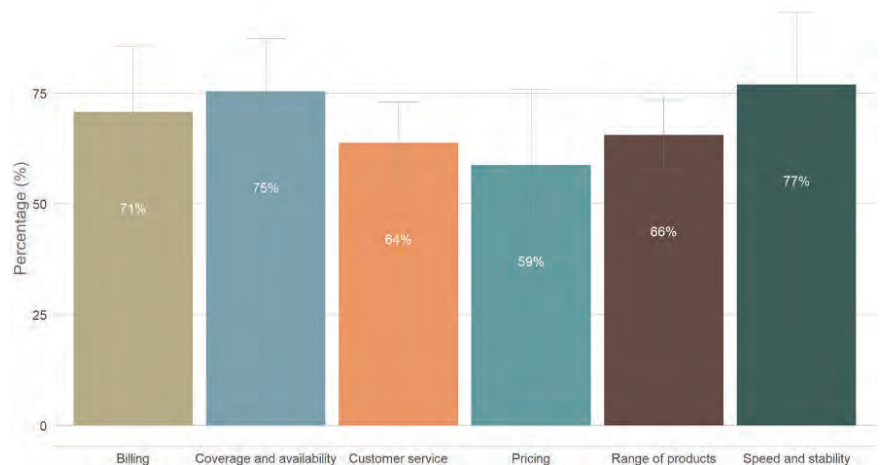
*Figure 41: Satisfaction levels of rural consumers with copper broadband*

Source: Customer satisfaction monitoring survey



*Figure 42: Satisfaction levels of rural consumers with wireless broadband (4G, WiMAX or satellite)*

Source: Customer satisfaction monitoring survey



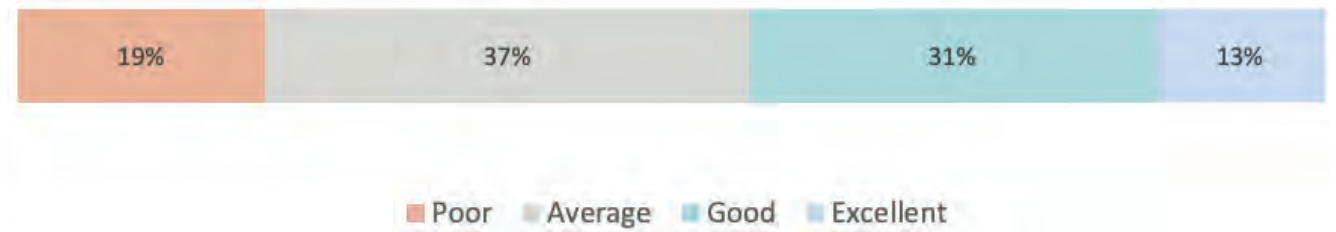
Given the small sample size, it is too early in our process to draw definitive conclusions from the above figures, as can be seen from the wide confidence intervals (indicated by the light grey lines surrounding the top of each bar). However, as our survey continues throughout 2023, we will be able to confirm what appears to be differences emerging across consumer groups.

The results below come from the first 2 months of data collection from our monthly customer satisfaction monitoring survey. Data was collected between November 2022 and January 2023 and includes responses from 120 rural residential broadband customer.

The survey is still in its initial stages and therefore the questions and results may change as the survey matures. However, the Commission considers the early results provide useful insights into the views and behaviours of consumers.

## Farmers and growers survey

Figure 43: Farmers and growers perceptions of internet service



Source: AgriTech

In 2022, a survey of 1,001 farmers and growers in New Zealand found that over half (56%) rated their internet service as poor or average.<sup>135</sup>

The regions with the highest proportion of respondents who rated their internet service as poor or average were Southland (70%) and Marlborough (67%).

Farmers and growers using copper technology are the least satisfied with their service, with 73% rating their internet service as poor or average

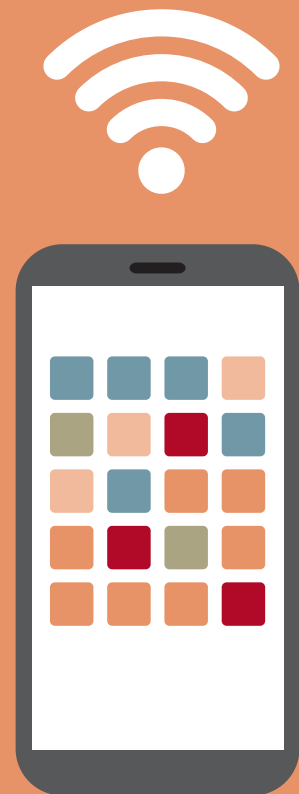
135 AgriTechNZ "Baseline of Digital Adoption in Primary Industries" (29 August 2022), page 19 – see <https://agritechnz.org.nz/knowledgehub/download-the-2022-agritechnz-baseline-of-digital-adoption-in-primary-industries-report/>

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# Connectivity on the move

Honotanga  
hāereerea

Mobile services  
(data, calls and texts)



## MARKET STRUCTURE HANGANGA MĀKETE

Market structure covers structural elements of telecommunications markets from infrastructure availability and the share of wholesale and retail offerings using that infrastructure through to the transparency and understanding of these offers by consumers.

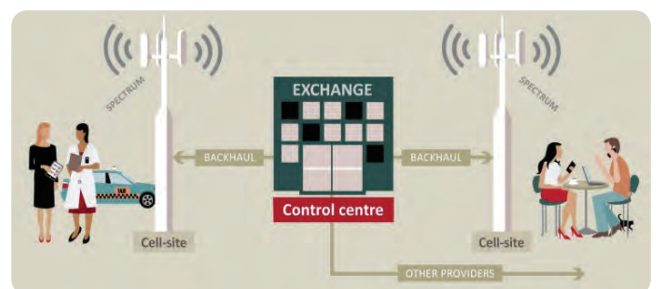
### INFRASTRUCTURE HANGANGA

**Telecommunications infrastructure – the physical components that connect homes and businesses to voice and broadband services – provides the foundation for how the rest of the market operates in New Zealand.**

The starting point for connecting Kiwis on the move is the infrastructure that has been deployed across New Zealand, including highways, holiday spots and other parts of the country without permanent populations

#### 2022 Highlights

- 2degrees launched its 5G network in February 2022.
- 5G mobile coverage has increased across urban areas for all three mobile network operators in the past year.
- Spark and Vodafone have divested their passive mobile infrastructure in 2022 and 2degrees has applied to do the same.





## Coverage<sup>136</sup>

In New Zealand, there are three national mobile networks operated by 2degrees, Spark and Vodafone.

There is currently no mobile equivalent of broadbandmap.nz that shows comparative coverage between the three MNOs.

Mobile coverage is generally measured by MNOs using computerised propagation models.

These models can calculate coverage as a percentage of the land mass covered or the percentage of population covered.

The models do not always reflect real-world experience.

The three MNOs produce their own coverage maps, but as they are not standardised or available in one place, comparing network coverage is challenging.

## 5G coverage

In 2022, average reported 5G mobile population coverage reached 18%.

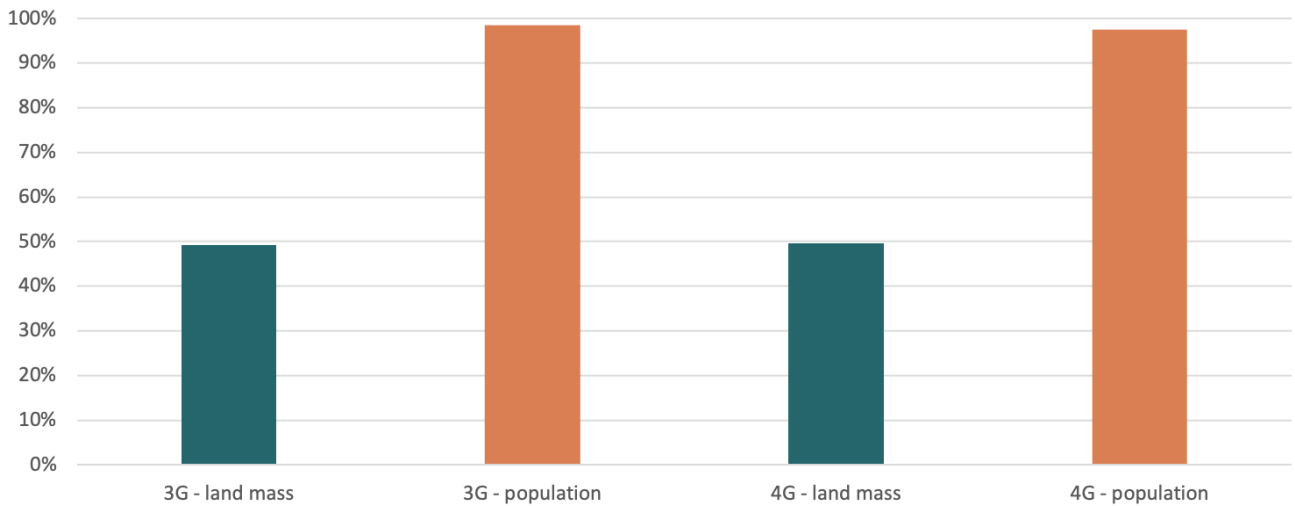
Land coverage was lower as the MNOs have focused on rolling out 5G services in urban areas, with average reported 5G land mass coverage of less than 1.0%.

Figures 44 and Figure 45 are based on reported coverage by the MNOs.

Figure 46 shows user experience of 5G networks, which is the proportion of time that customers with a 5G device had an active 5G connection.

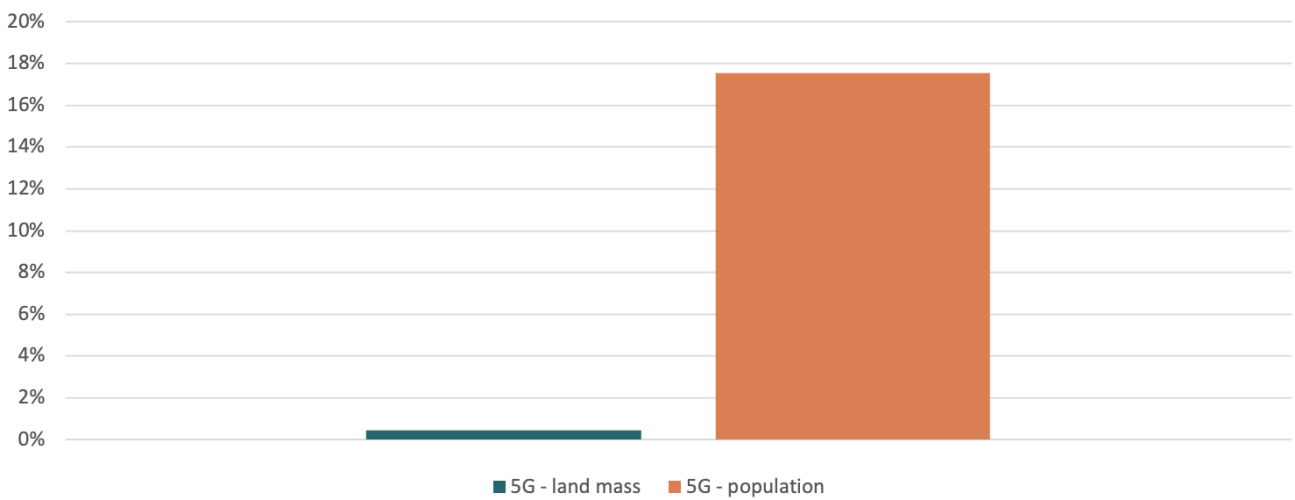
<sup>136</sup> We are exploring opportunities for standardising the approach to measuring coverage or otherwise enabling consumers to more accurately compare the performance of mobile networks in different parts of the country.

Figure 44: Average reported 3G and 4G mobile coverage



Source: Industry questionnaire

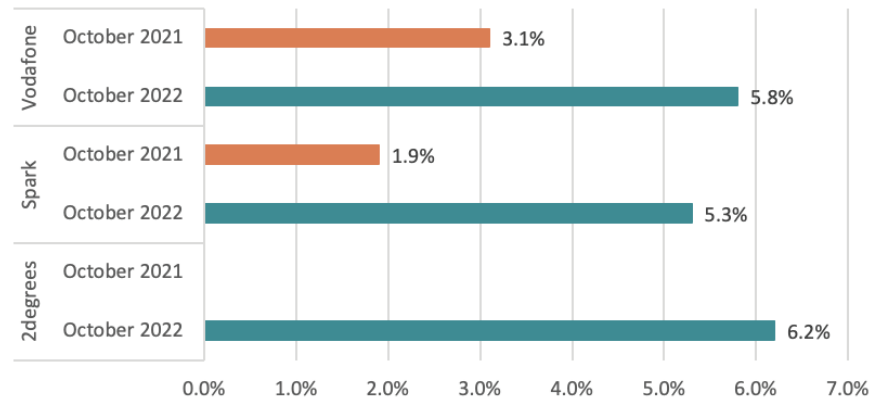
Figure 45: Average reported 5G mobile coverage



Source: Industry questionnaire

**Figure 46: User-tested 5G coverage**

Source: Opensignal<sup>137</sup>



Both Vodafone and Spark have increased their 5G mobile network coverage significantly between 2021 and 2022. 2degrees launched its 5G network in 2022 and is continuing to expand its 5G mobile network coverage.

We expect 5G coverage to continue to increase in the next few years following the long-term allocation of 3.5GHz spectrum. We also note Spark has publicly set a target of extending 5G coverage to 90% of the population by the end of 2023.<sup>138</sup>

### 4G coverage

Reported 4G coverage is consistent across MNOs, and average coverage remained steady at 98% in 2022. There were improvements in 4G land mass coverage, with average coverage reaching 50% in 2022, up from 48% in 2021.

### 3G coverage

Reported 3G coverage is consistent across MNOs, and average 3G population coverage remained steady at 99%. There has been no change in average 3G land mass coverage.

We expect 3G coverage to begin decreasing in the next 3 years as MNOs start to shut down their 3G networks. Vodafone has announced that it will switch off its 3G network from 31 August 2024, and Spark has reported that it will announce the timeline for its 3G network shut-off before August 2023.<sup>139</sup>

<sup>137</sup> Opensignal “New Zealand Mobile Network Experience Report” (October 2022) – see <https://www.opensignal.com/reports/2022/10/newzealand/mobile-network-experience>; Opensignal “New Zealand Mobile Network Experience Report” (October 2021) – see <https://www.opensignal.com/reports/2021/10/newzealand/mobile-network-experience>

<sup>138</sup> Spark “Spark boosts 5G rollout investment to achieve 90% population coverage by the end of 2023” (18 August 2021) – see <https://www.sparknz.co.nz/news/5g-rollout-boost/>

<sup>139</sup> Stuff “Vodafone sets data to turn off 3G, Spark expects to follow suit” (24 August 2022) – see <https://www.stuff.co.nz/business/129675040/vodafone-sets-date-to-turn-off-3g-spark-expects-to-follow-suit>

## Government investment

The Mobile Black Spot Fund (**MBSF**) was announced by the government in 2018. MBSF seeks to provide greater mobile coverage on approximately 1,400km of state highways and in 168 tourism locations where no coverage previously existed.

RCG is contracted to deliver the MBSF programme. Refer to our Market Structure/Infrastructure section under Rural Connectivity at Home (page 70) for our discussion of the RCG and other government infrastructure investments.

In the year to 30 June 2022, an additional 25 tourism sites and 182km of state highway gained mobile coverage.<sup>140</sup>

The MBSF programme was set to be completed by December 2022, but as at 30 June 2022, actual completion of tourism sites sat at 95 (57% complete) and actual completion of additional state highway coverage sat at 1,059km (75% complete).<sup>141</sup>

## Spectrum

MNOs use a variety of spectrum bands to provide mobile services. Lower spectrum frequencies provide wider coverage and have better penetration (meaning they are better able to pass through objects such as walls) than higher spectrum frequencies.

Spectrum is a finite resource and MNOs can only use a certain range of frequencies to provide mobile services. However, MNOs can improve the mobile services they provide by building more towers/antenna. As 5G operates on a higher frequency than previous generations and as higher frequencies have lower penetration, MNOs will look to build more sites to provide 5G mobile services to consumers.

In October 2022, the government announced that it was intending to provide long-term access to the key 5G spectrum band, 3.5GHz, through a direct allocation process to the MNOs and Dense Air.<sup>142,143</sup> The announcement noted that the government had chosen a direct allocation process, removing financial requirements on MNOs in return for coverage obligations to support rural connectivity.

It is expected that this will see faster roll-out of 5G to small towns across New Zealand and further investment by MNOs in their RCG joint venture.

140 Commerce Commission analysis of June 2021 and June 2022 Crown Infrastructure Partners Quarterly Connectivity Updates at <https://www.crowninfrastructure.govt.nz/about/publications/>

141 Crown Infrastructure Partners "Quarterly Connectivity Update – 30 June 2022" – see <https://www.crowninfrastructure.govt.nz/wp-content/uploads/CIP-Connectivity-Quarterly-Report-June-2022.pdf>

142 Beehive "Kiwis to benefit from accelerated 5G roll-out" (20 October 2022) – see <https://www.beehive.govt.nz/release/kiwis-benefit-accelerated-5g-roll-out>

143 Dense Air is a shared network infrastructure provider.

## Ownership

In February 2022, Spark announced plans to establish a subsidiary company named Spark TowerCo to take control of its passive mobile infrastructure. In July 2022, Spark announced that Canadian pension fund Ontario Teachers' Pension Plan Board would acquire a 70% stake in Spark TowerCo. Spark retained the remaining 30% stake.<sup>144</sup> The deal closed in October 2022, with Spark receiving net cash proceeds of \$900 million. The following month, Spark TowerCo rebranded as Connexa Limited.<sup>145</sup>

In July 2022, Vodafone announced a deal to divest its passive infrastructure to its newly formed TowerCo for \$1.7 billion.<sup>146</sup> InfraRed Capital Partners and Northleaf Capital Partners each took 40% stakes, with Vodafone's half owner, Infratil, taking the remaining 20% stake. This deal closed in early November 2022.

Spark stated the money raised would be used to maximise shareholder returns and to invest in future growth, while Vodafone stated the money raised would be used for future investment in hardware and services.<sup>147,148</sup>

In December 2022, we received a clearance application from Connexa Limited to acquire passive mobile telecommunications infrastructure from 2degrees.<sup>149</sup> We released our Statement of Preliminary Issues for the application in January 2023. We are scheduled to make a decision on the application by 19 May 2023.

Passive infrastructure refers to infrastructure that is not part of the active layer of a telecommunications network. It typically consists of network elements such as towers, masts and poles.

For some time, we have observed MNOs around the world divest their passive infrastructure to tower companies (or TowerCos). The primary reason for this divestment seems to be to free up capital for investments, including 5G deployment. New Zealand's MNOs have recently followed this global trend.

144 Spark "Spark announces sale of 70% of TowerCo business for \$900 million" (12 July 2022) – <https://www.sparknz.co.nz/news/Spark-announces-sale-of-TowerCo/>

145 Reseller "Sparks TowerCo spin-off rebranded to Connexa" (15 November 2022) – <https://www.reseller.co.nz/article/703311/spark-towerco-spin-off-now-known-connexa/>

146 Vodafone "Vodafone to sell its passive mobile tower assets to InfraRed Capital Partners and Northleaf Capital Partners alongside Infratil reinvestment" (18 July 2022) – see <https://news.vodafone.co.nz/towerco>

147 Spark "Spark announces sale of 70% of TowerCo business for \$900 million" (12 July 2022) – see <https://www.sparknz.co.nz/news/Spark-announces-sale-of-TowerCo/>

148 RNZ "Vodafone agrees to \$1.7b sale of mobile phone towers" (18 July 2022) – see <https://www.rnz.co.nz/news/business/471133/vodafone-agrees-to-1-point-7b-sale-of-mobile-phone-towers>

149 We released our Statement of Preliminary Issues for the application in January 2023. We are scheduled to make a decision on the application by 19 May 2023.

## The wholesale market plays an important role in shaping outcomes at the retail level for consumers. Regulation usually applies where competition by itself is insufficient to result in access to infrastructure with natural monopoly characteristics.

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The wholesale mobile market has been integral in helping facilitate the entry and expansion of New Zealand's third mobile network – a fundamental shift in the overall market structure of telecommunications in New Zealand. Current wholesale activity takes place on commercial terms, subject to certain regulatory provisions

### 2022 Highlights

- MyRepublic launched as an MVNO in August 2022 on Vodafone's network.
- In 2022, there were 77,000 MVNO subscribers, down from 106,000 in 2021. This drop is largely due to the Vocus/2degrees merger.

Over time, certain regulatory protections have been put in place to preserve incentives for competitive outcomes in the mobile market. These include price caps for mobile termination access services (**MTAS**) and provisions for services that are critical in a multi-operator environment such as mobile co-location and national roaming.

A small wholesale market exists within the mobile sector, which now largely operates on commercial terms, subject to ongoing monitoring by the Commission.

## MVNO

An MVNO is a mobile provider that does not own the network infrastructure over which it provides services to its customers. An MVNO enters into an agreement with an MNO to obtain bulk access to network services at wholesale rates, then sets retail prices independently.

As shown in Table 18 below, there are six MVNOs currently operating in New Zealand. All three MNOs are hosting MVNOs on their networks.

MyRepublic is the latest MVNO to launch. It launched in August 2022 on Vodafone’s network.

*Table 18: MVNOs operating in New Zealand*

MVNO	MNO host
Compass	Spark <sup>150</sup>
Kogan Mobile	Vodafone
Megatel	Spark
MyRepublic	Vodafone
Trustpower	Spark
Warehouse Mobile	2degrees

In 2022, there were 77,000 MVNO subscribers, down from 106,000 in 2021. This drop is largely due to the Vocus/2degrees merger, with Vocus making up 32% of all MVNO customers in 2021.<sup>151</sup>

## 5G network access

Whether MVNOs get access to the latest features and upgrades of their host MNO network is a feature of the contractual agreements between the two parties. An example is whether the MVNO gets access to 5G. Currently:

- Warehouse Mobile does not have access to 2degrees’ 5G network
- Kogan Mobile and MyRepublic do have access to Vodafone’s 5G network
- Trustpower does have access to Spark’s 5G network but it is unclear if Compass and Megatel have access.

150 National Business Review “Zeronet promises guilt-free internet searching” – see <https://www.nbr.co.nz/tech/zeronet-promises-guilt-free-internet-searching/>

151 Vocus reported 34,000 mobile consumers in its public merger application. Voyage Digital, Orcon and Two Degrees merger clearance application (4 January 2022), para 91 – see [https://comcom.govt.nz/\\_data/assets/pdf\\_file/0032/274739/Voyage.-Orcon-and-2degrees-Application-4-January-2022.pdf](https://comcom.govt.nz/_data/assets/pdf_file/0032/274739/Voyage.-Orcon-and-2degrees-Application-4-January-2022.pdf)

## Mobile Co-location

Mobile co-location allows an MNO to locate its equipment on another MNO's existing infrastructure (mast or tower). Co-location helps reduce network infrastructure costs for existing and potential MNOs by providing for the sharing of network infrastructure.

Co-location is available under regulated and commercial terms.

We are required to undertake a statutory review of the mobile co-location service every 5 years to determine whether reasonable grounds exist to investigate its removal from the Telecommunications Act. We are next to review mobile co-location in 2026.

We do not currently have information on the extent of mobile co-location in New Zealand.

## National Roaming

National roaming allows customers of one mobile network to use another network when they are outside their own provider's coverage area within New Zealand.

We are required to undertake a statutory review of the national roaming service every 5 years to determine whether reasonable grounds exist to investigate its removal from the Telecommunications Act.

We are reviewing national roaming this year.

2degrees utilised a national roaming service on Vodafone's network while it built out its own network. In 2020, 2degrees announced that it had signed a new infrastructure sharing agreement that meant it would no longer roam on Vodafone's network.<sup>152</sup> Prior to the agreement, 2degrees reported that it was carrying less than 1% of its traffic on Vodafone's network.

152 Scoop "2degrees to complete national network, deploys innovative infrastructure sharing model" (22 June 2020) – see <https://www.scoop.co.nz/stories/BU2006/S00398/2degrees-to-complete-national-network-deploys-innovative-infrastructure-sharing-model.htm>



**Retail telecommunications markets are where combinations of infrastructure and wholesale offers are packaged up by competing firms/brands to be marketed to consumers. The structure of the retail market has the most direct effect in shaping the experience of consumers.**

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The retail mobile market structure has been significantly shaped by past wholesale access regulation and spectrum allocation decisions that have supported the entry and expansion of 2degrees – New Zealand’s third, fully fledged, mobile network operator.

### **2022 Highlights**

- MVNO subscribers make up 1.3% of the mobile market, down from 1.8% in 2021.

Retail mobile services are predominantly supplied by the three MNOs – 2degrees, Spark and Vodafone. In addition, there are six MVNOs (Compass, Kogan Mobile, Megatel, MyRepublic, Trustpower and Warehouse Mobile) that serve a small share of mobile subscribers.

## Retail market share

### Market concentration

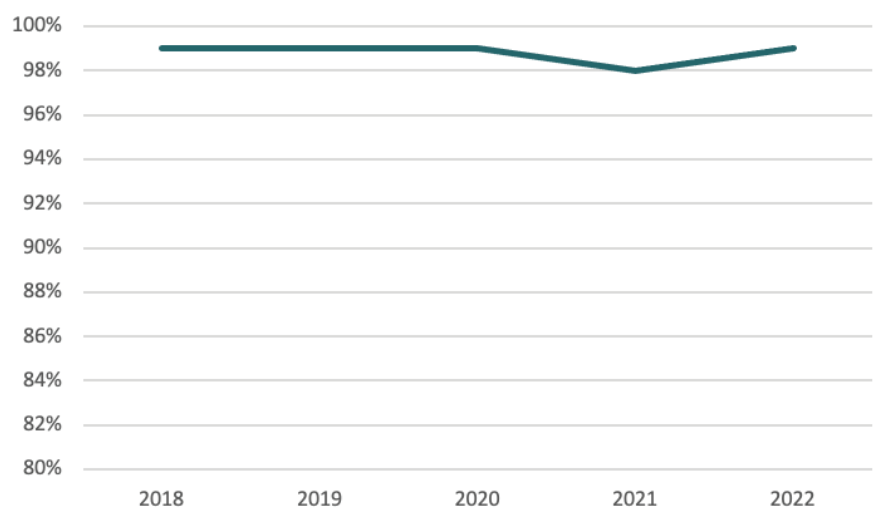
Market concentration, or the extent to which the distribution of the market across firms is limited to relatively few firms, is an important structural characteristic of a market.

We estimate that the mobile market is highly concentrated with an HHI of 3,484.<sup>153</sup> This reflects the whole market situation (both residential and business segments).

Figure 47 below shows that the market concentration ratio of the MNOs (including their sub-brands) has been static in recent years.

Figure 47: Market share of the MNOs by connections

Source: Annual industry questionnaire



The merger of Vocus and 2degrees was completed on 1 June 2022 so Vocus’s mobile customers have been included in the MNO figure this year.<sup>154</sup> Prior to the merger, Spark was Vocus’s MVNO host, but we expect in time that these customers will be migrated to 2degrees’ network.<sup>155</sup>

MVNO subscribers make up the final 1.3% of the mobile market down from 1.8% in 2021. As our questionnaire covers the year to 30 June 2022, MyRepublic’s MVNO subscribers will only be captured from next year onwards.

There are several ways to look at market concentration. We have chosen to use both HHI and a simpler market concentration ratio.

HHI analyses market shares of each firm in a market to determine a value of market concentration – an HHI between

1,500 and 2,500 indicates moderate concentration, whereas values above this indicate high concentration.

The market concentration simply looks at the market shares of the top four providers relative to the total market share.

153 This figure was calculated using the market shares of MNOs (including their sub-brands) and the five MVNOs included in the industry questionnaire.

154 Vocus’s parent companies Macquarie Asset Management and Aware Super purchased 2degrees in November 2021.

155 Voyage Digital, Orcon and Two Degrees merger clearance application (4 January 2022), para 162 – see [https://comcom.govt.nz/\\_data/assets/pdf\\_file/0032/274739/Voyage-Orcon-and-2degrees-Application-4-January-2022.pdf](https://comcom.govt.nz/_data/assets/pdf_file/0032/274739/Voyage-Orcon-and-2degrees-Application-4-January-2022.pdf)

## Competition between MNOs

Having looked at the MNOs relative to the total market, it is important to also understand the level of rivalry or competition that exists among the MNOs.

To do this, we have looked across the market shares of the MNOs to identify whether any volatility exists over time.

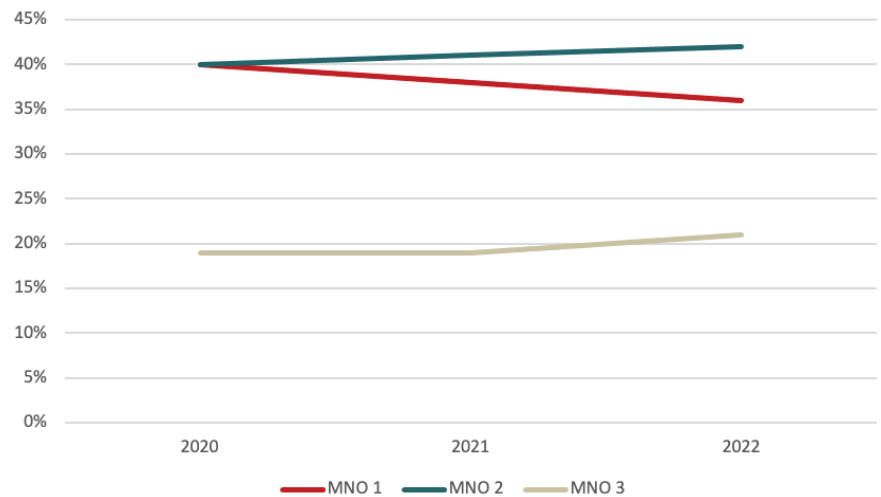
At a high level, we would interpret volatility between providers' market shares as an indicator of competition.

While we do not have the data required to produce a long time series, Figure 48 does suggest there is some volatility in the market shares between MNOs.

We know that consumer inertia (aversion to changing plans and/or provider) also plays a role in the modest rates of MNO market share changes. We discuss inertia in more detail in the consumer section below.

Figure 48: MNO market shares 2020–2022

Source: Industry questionnaire



## Retail offers

Mobile retailers' offers in the retail telecommunications market are made up of several key aspects:

- Plan types – prepaid versus post-paid.
- Plan allowance of texts, calls, and data.
- Data speeds.

## Service characteristics – plan type

In 2022, 57% of residential mobile customers were on pre-paid plans, down from 59% in 2021.

There are two types of mobile plans – pre-paid and post-paid.

Pre-paid plans require customers to load credit onto their accounts. Using this credit, customers can then purchase bundles of calls, texts and data or pay as they go (casual).

On the other hand, customers on post-paid plans will pay at the end of each month of service.

### Service characteristics – allowance

Endless plans provide customers with endless texts, calls and data. However, in the case of data, the majority of plans will downgrade speeds after a certain amount of

data has been consumed. In 2022, 23% of endless plans provided 20GB or more of maximum speed data, up from 18% in 2021. This shows that both the number of endless

plans and the maximum speed data allowance of these plans are increasing.

Figure 49: Pre-paid plan type<sup>156</sup>

Source: Industry questionnaire

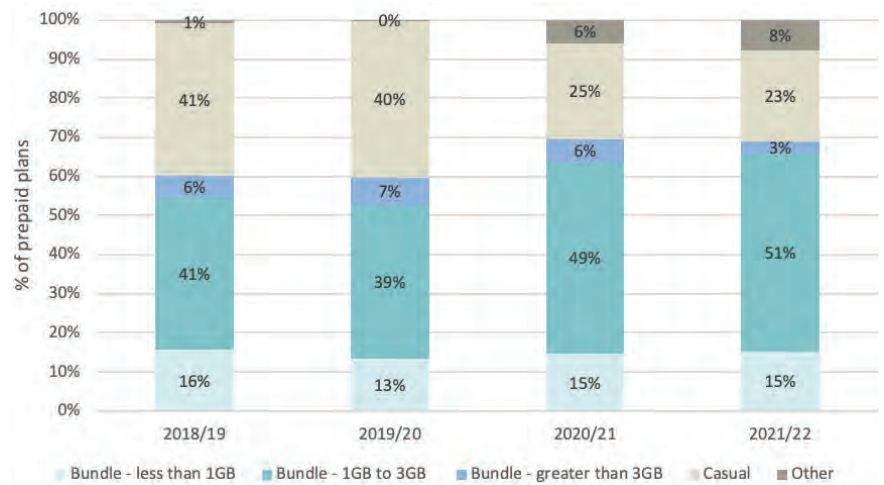
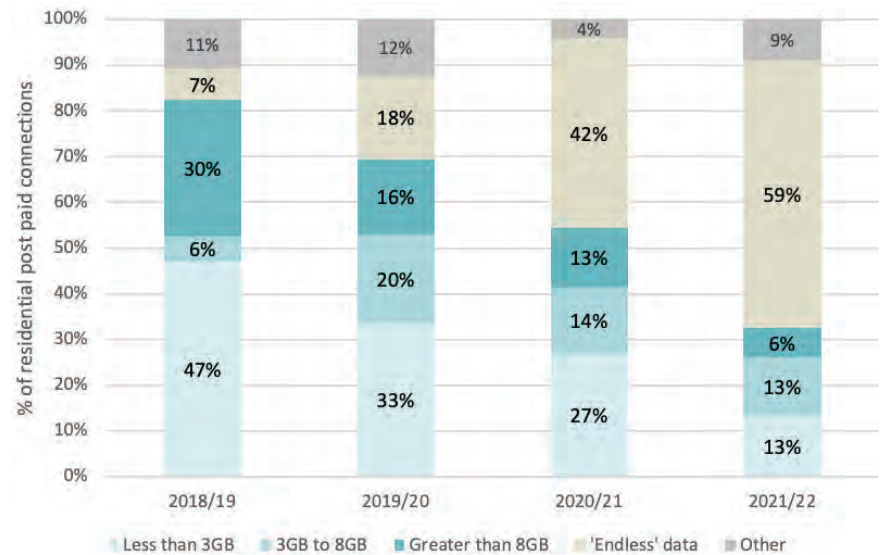


Figure 50: Data allowances of residential post-paid plans

Source: Industry questionnaire



156 Other includes data-only and endless plans.

## Service characteristics – speed

For the most part, mobile plans in New Zealand are not sold based on their speed. As noted earlier, endless plans allow customers to pick an amount of data they would like to consume at full speed before they are downgraded to slower speeds.

MyRepublic is the only provider offering mobile plans at different speeds. When MyRepublic launched mobile services in July 2022, it offered three endless usage plans where customers could choose between a 5Mbps, 10Mbps or 20Mbps speed service. MyRepublic currently retails two speed tiers – 2Mbps and 10Mbps.

## Consumers of telecommunications are presented with a wide range of retail offers that are products of the underlying market structure – the network infrastructure, its capabilities, ownership and regulatory settings.

Whether consumers understand and act on these offers is a product of the information available to them, including through marketing, and their innate preferences and behaviours.

### 2022 Highlights

- Initial survey results show that 58% of mobile consumers have been with their provider for more than 5 years.

### Market Transparency

In 2020, a Commission review of bills from 80,000 mobile customers identified issues of transparency and consumer inertia in the residential mobile market. To address these issues, the Commission, among other things, requested MNOs to improve the usage and spend information made available to mobile consumers.

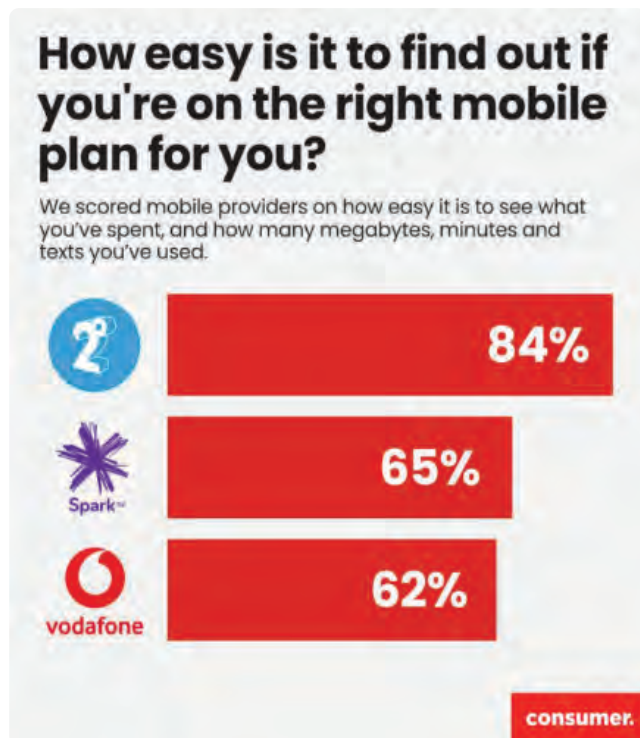
In 2022, we engaged Consumer NZ to undertake an independent assessment of the changes to usage and spend information made by MNOs.<sup>157</sup> This focused on the usability and accessibility of historical spend and usage information and how readily it enables consumers to see any gaps between usage and spend.

Consumer NZ's review found that consumers are getting better usage and spend information (through either the MNO's app or annual reminders) than they were before, but that there are significant opportunities for further improvements across all MNOs.<sup>158</sup>

<sup>157</sup> Commerce Commission "Addressing transparency and inertia issues in the residential mobile market" (19 May 2022) – see [https://comcom.govt.nz/\\_data/assets/pdf\\_file/0026/283904/Addressing-transparency-and-Inertia-issues-in-the-residential-mobile-market-update-Open-letter-20-May-2022.pdf](https://comcom.govt.nz/_data/assets/pdf_file/0026/283904/Addressing-transparency-and-Inertia-issues-in-the-residential-mobile-market-update-Open-letter-20-May-2022.pdf)

<sup>158</sup> Consumer NZ's full review can be found at <https://www.consumer.org.nz/articles/how-consumer-friendly-is-your-telco-provider>

Figure 51: Consumer NZ's overall ratings by MNO



## Switching

The level of switching observed in a market may be indicative of the ability of consumers to act and take advantage of competing offers. It may also indicate the presence of behavioural preferences towards the existing and familiar.

There is no fixed proportion of the market that should be expected to switch. Consumers not switching provider is not necessarily a concern if those consumers are satisfied with their provider and/or do not face significant barriers to switching.

### Time spent with current provider

The survey showed that 58% of mobile customers have been with their current provider for more than 5 years. This is higher than the 2018 Consumer NZ survey of residential mobile consumers which showed that 54% of consumers, had been with their provider for more than 5 years.

This is also higher than the broadband market where our recent survey showed that only 40% of customers have been with their broadband provider for more than 5 years.<sup>159</sup>

A common reason given by consumers for not switching is that

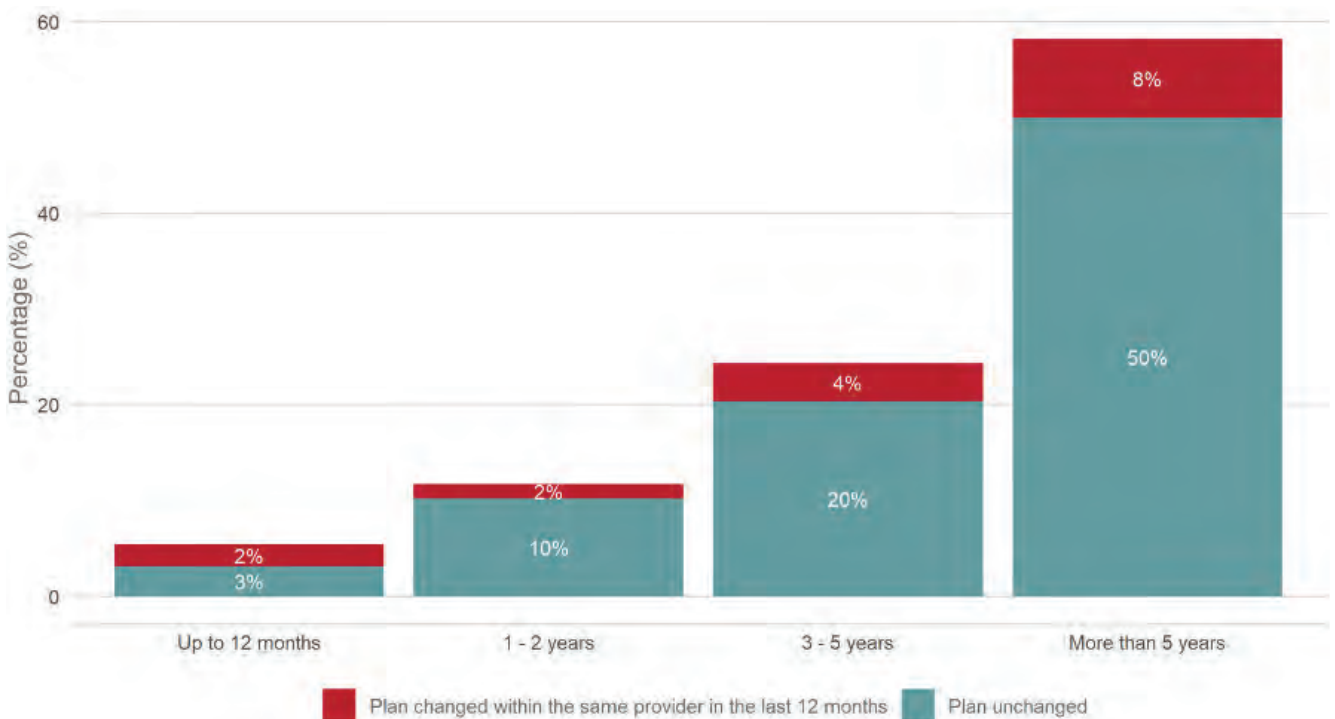
they are satisfied with their current provider. However, consumers tend to compare alternative offers infrequently. As a result, such consumers may be unaware if there are other retail offers available that might better meet their needs.

A further reason for not switching provider is that consumers are switching plans with the same provider. As shown in Figure 52 below, approximately one in every eight consumers who had been with their current provider for more than 5 years switched plans in the last 12 months.

The results below are based on the first 2 months of data collection from our monthly customer satisfaction monitoring survey. Data was collected between November 2022 and January 2023 and includes responses from 1,074 residential mobile customers.

The survey is still in its initial stages and therefore the questions and results may change as the survey matures. However, the Commission considers the early results provide useful insights into the views and behaviours of consumers.

Figure 52: Time spent with current mobile provider



Source: Customer satisfaction monitoring survey<sup>160</sup>

159 Commerce Commission “Mobile Market Study: Findings” (26 September 2019) Figure 17 – see [https://comcom.govt.nz/data/assets/pdf\\_file/0022/177331/Mobile-Market-Study-Findings-report-26-September-2019.PDF](https://comcom.govt.nz/data/assets/pdf_file/0022/177331/Mobile-Market-Study-Findings-report-26-September-2019.PDF)

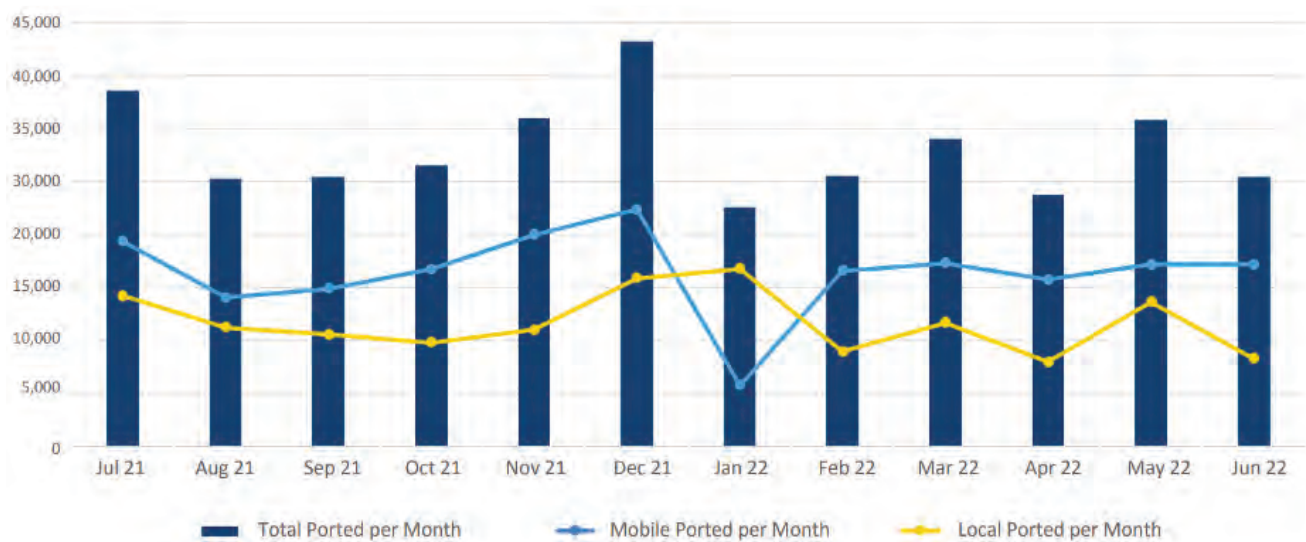
160 Rounded numbers can generate a difference to total numbers in the report. 95% confidence interval 4%–7% for “Up to 12 months”, 9%–14% for “1-2 years”, 21%–28% for “3-5 years”, 55%-61% for “More than 5 years”.



## Switching provider

As can be seen from Figure 53 below, the level of mobile porting is fairly constant throughout the year, with an increase leading up to summer holidays, followed by a drop-off after that period. Monthly mobile porting volumes in the range of 15,000–25,000 represent mobile switching rates of 3–5% per year.<sup>161</sup>

Figure 53: Switching providers – Net porting Activity



Source: TCF<sup>162</sup>

In telecommunications, porting is the process of transferring a phone number from one network to another. The ability for consumers to port their numbers – particularly mobile numbers – is a critical market feature that supports switching, which in turn promotes competition and positive consumer outcomes. For this reason, the porting service and associated process is regulated.

The TCF manages the operational aspects of porting in New Zealand across more than 30 fixed and mobile RSPs. The TCF tracks the porting of numbers month to month and publishes activity on a quarterly basis.

We use porting data as a proxy metric for consumers switching between different providers.

161 Based on total mobile connections reported in the annual industry questionnaire.

162 TCF "Annual Report 2022" – see <https://www.tcf.org.nz/assets/reports/2022-tcf-annual-report-web.pdf>

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## MARKET OUTCOMES PUTANGA MĀKETE

Market outcomes flow from market structure and cover the performance of telecommunications infrastructure and the levels of wholesale and retail pricing through to consumer affordability and satisfaction.

## INFRASTRUCTURE HANGANGA

**Reliable, adaptable, high-performing telecommunications infrastructure is fundamental for positive connectivity outcomes in Kiwi homes and businesses.**

### 2022 Highlights

- New Zealand was one of the top 15 markets for average download speed in Opensignal's global 5G experience report in June 2022.
- However, 32% of respondents to the 2022 Federated Farmers Rural Connectivity Survey said their mobile phone service had declined in the last 12 months.

## Speeds

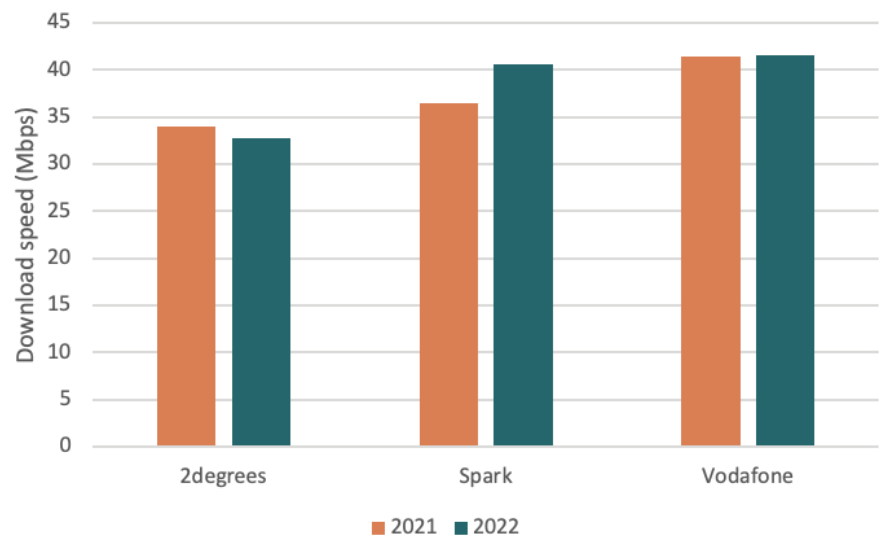
Figure 54 below shows average download speeds users experience across an MNO’s networks (3G, 4G and 5G).

This means that MNOs with wider 5G coverage (and subscribers with capable 5G devices) will record higher speeds.

Download speed as measured is the speed data travels from the internet to the mobile device.

*Figure 54: Average mobile download speeds*

Source: Opensignal<sup>163</sup>



163 Opensignal “New Zealand Mobile Network Experience Report” (October 2022) – see <https://www.opensignal.com/reports/2022/10/newzealand/mobile-network-experience>; Opensignal “New Zealand Mobile Network Experience Report” (October 2021) – see <https://www.opensignal.com/reports/2021/10/newzealand/mobile-network-experience>

## 5G network

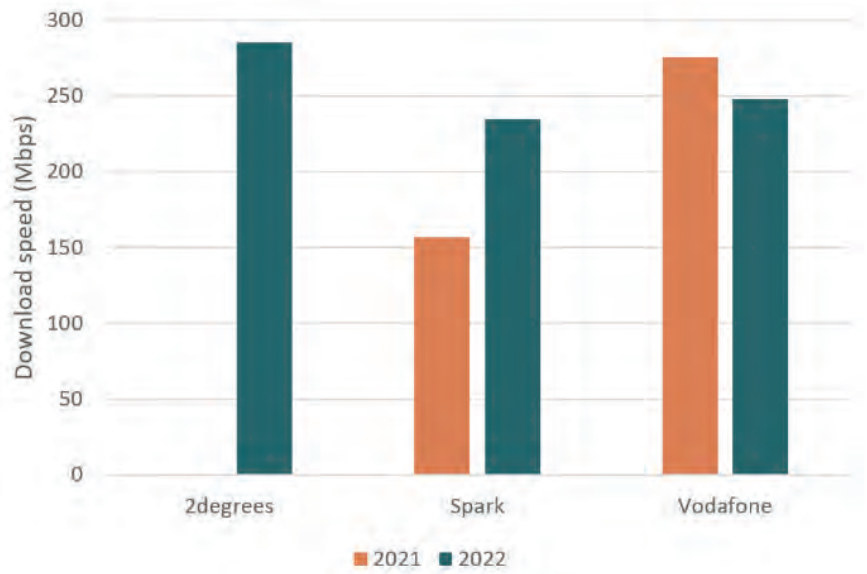
2degrees launched its 5G mobile service in February 2022 so we are not able to provide a comparison between 2021 and 2022.

Because 2degrees’ 5G roll-out is still in its early stages, we may see some fluctuations in its download speeds in the future as more customers

move to 5G and put more pressure on its network.

*Figure 55: 5G average download speeds where available in NZ*

Source: Opensignal<sup>164</sup>

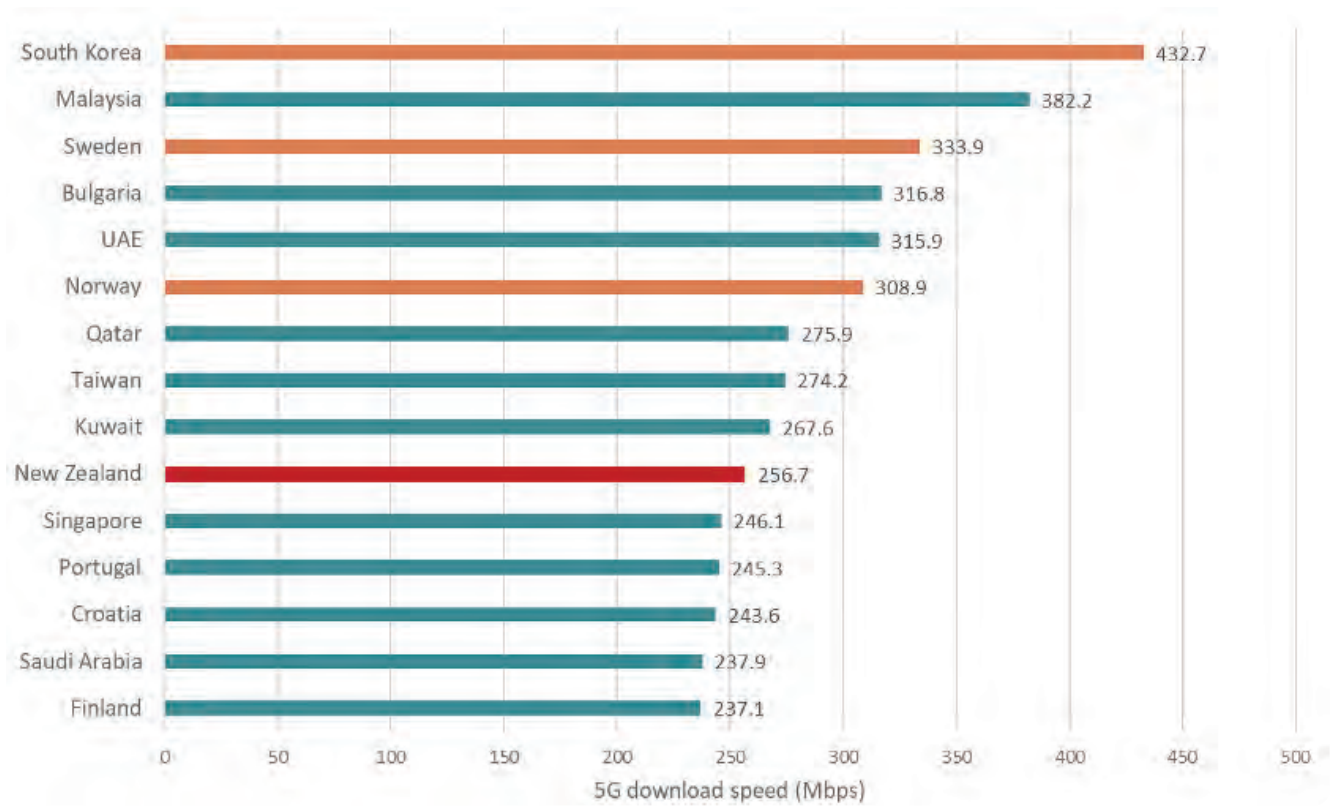


164 Ibid.

### International speed comparison

New Zealand was one of Opensignal’s 5G global top 15 markets for average download speed in its global 5G experience report in June 2022. As shown below in Figure 56, New Zealand outperformed most OECD countries, with only South Korea, Norway and Sweden having higher average download speeds over the period.<sup>165</sup>

Figure 56: 5G global top 15 markets



Source: Opensignal

165 Opensignal “Benchmarking the global 5G experience – June 2022” (22 June 2022) – see <https://www.opensignal.com/2022/06/22/benchmarking-the-global-5g-experience-june-2022>

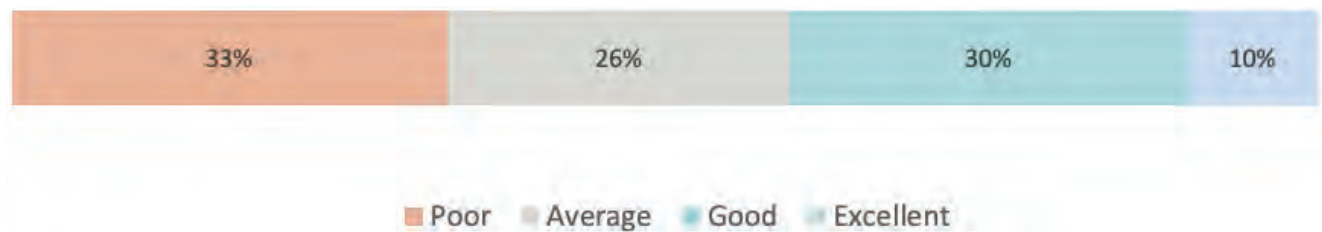
## Reliability

### Rural mobile experiences

Our customer satisfaction monitoring (set out later in this chapter) suggests a gap in satisfaction levels between urban and rural mobile consumers, with the biggest gap in coverage and availability.

Reflecting this, in the 2022 Federated Farmers Rural Connectivity Survey, 32% of respondents said their mobile phone service had declined in the last 12 months.<sup>166</sup>

Figure 57: Farmers' and growers' perceptions of mobile coverage



Source: AgriTech<sup>167</sup>

In addition, as shown in Figure 57, a separate survey of 1,001 farmers and growers in New Zealand found that over half (59%) rated their mobile coverage as poor or average. The regions with the highest proportion of respondents who rated their mobile service as poor or average were located in the Manawatū-Whanganui (68%) and Marlborough (67%) regions.

166 Federated Farmers "Too many farmers still stuck in connectivity 'slow lane'" – see: <https://fedfarm.org.nz/FFPublic/FFPublic/Media-Releases/2022/Too-many-farmers-still-stuck-in-connectivity-slow-lane.aspx>

167 AgriTech "Baseline of Digital Adoption in Primary Industries" Report 2022, page 20 – see <https://agritechnz.org.nz/knowledgehub/download-the-2022-agritechnz-baseline-of-digital-adoption-in-primary-industries-report/>

## Wholesale-level pricing plays an important part in shaping retail-level pricing for consumers. Regulatory oversight or obligations commonly apply at this level of the market.

### 2022 Highlights

- MNOs continue to price MTAS at the regulated price caps set in 2011.

### Mobile termination access services

Mobile termination access services (**MTAS**) are the termination services a fixed or mobile network operator needs to allow its subscribers to communicate with the subscribers of a mobile network.

MTAS is a designated access service under Schedule 1 of the Telecommunications Act 2001. This means that we can determine price and non-price terms for the service. MTAS includes termination of voice calls (fixed-mobile and mobile-mobile) and SMS.

We first regulated MTAS in 2011 at a time when the mobile market was characterised by:

- significant on-net off-net price differences;
- very little cross-net traffic
- high prices relative to other OECD countries (particularly for pre-paid customers)
- low mobile voice usage compared to other countries.

The regulated MTAS pricing for voice was set using a glidepath that reduced from \$0.0748 in May 2011 to \$0.0356 in April 2015. MTAS SMS pricing did not use a glidepath. All MTAS pricing was set using benchmarks from other countries based on comparability criteria.

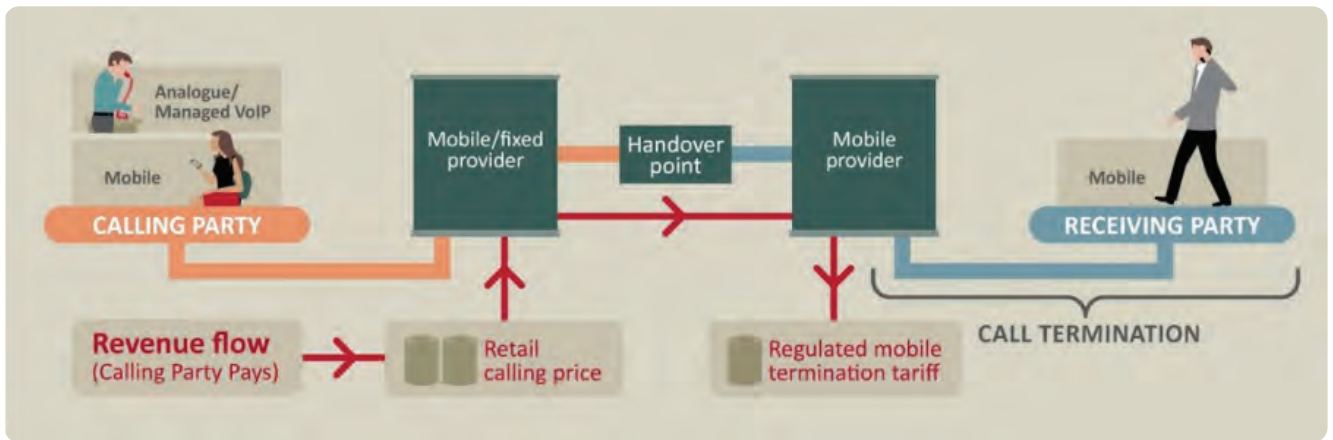


Table 19: Regulated mobile termination rates

	Current rate
Voice (cents per minute)	3.56
SMS (cents per SMS)	0.06

Following on from our last review of MTAS in 2020, we have collected more detailed information on MTAS traffic and revenue in our industry questionnaire. This information shows that all three MNOs are currently charging at or marginally below the regulated MTAS price caps for both voice and SMS services that are based on 2011 benchmarks.

In our 2020 MTAS review, we noted that, as the cost-based benchmarks used to set prices in the MTAS standard terms determination have been dropping, we would view MTAS below the regulated price cap as evidence of some competitive constraint.<sup>168</sup> However, we have yet to observe any material price movement below the regulated price caps.

## MVNO

### Prices

MVNO agreements are reached on commercial terms so there is no public information on wholesale prices.

<sup>168</sup> Commerce Commission “Final decision on Mobile Termination Access Services (MTAS): Final decision on whether to commence an investigation under clause 1(3) of Schedule 3 of the Telecommunications Act” (2 September 2020) – see [https://comcom.govt.nz/\\_data/assets/pdf\\_file/0018/224127/Final-decision-on-Mobile-Termination-Access-Services-MTAS-2-September-2020.pdf](https://comcom.govt.nz/_data/assets/pdf_file/0018/224127/Final-decision-on-Mobile-Termination-Access-Services-MTAS-2-September-2020.pdf)



## Retail pricing outcomes are based on the underlying infrastructure or wholesale costs but also take into account competitive dynamics, relativities between offers and consumer demand.

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### 2022 Highlights

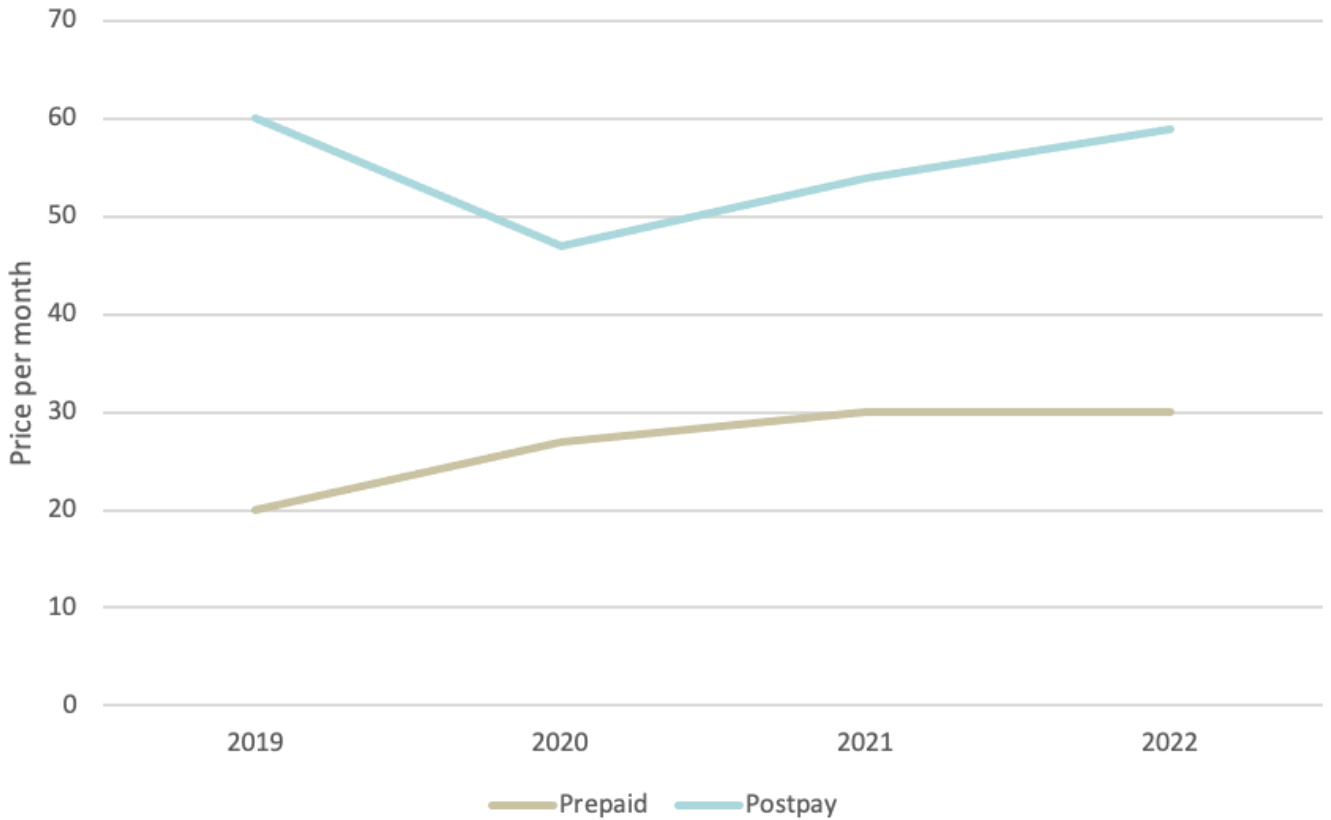
- The price an average mobile customer needs to pay to meet their usage has increased in the past year for residential post-paid customers, but has remained steady for pre-paid customers.
- The price an average residential post-paid customer needs to pay to meet their usage in New Zealand is \$12 more than the OECD average.

### Prices

We use Teligen's global price benchmarking database for some aspects of our pricing analysis. Teligen's benchmarks cover plans from incumbent providers who serve at least 70% of customers in a given country. In the case of New Zealand, Spark, Vodafone, Orcon and Slingshot are the brands included. We are working with Teligen to have 2degrees added to the benchmark going forward.

## Price Trends

Figure 58: Teligen’s price benchmarks to meet average mobile usage



Source: TechInsights

Table 20: Average mobile data usage

	2019	2020	2021	2022
<b>Pre-paid</b>	1.3GB	1.8GB	2.5GB	2.8GB
<b>Post-paid</b>	3.4GB	4.7GB	6.0GB	6.9GB

Source: Industry questionnaire

The price an average prepaid customer needs to pay to meet their usage has remained steady in the last year but has increased compared to 2019. However, over the same time period, average data usage has increased.

The price an average residential post-paid customer needs to pay to meet their usage has increased since last year but is comparable to prices in 2019. Over this time period, average data usage has increased by over 3GB.

## MNO vs MVNO pricing

Pre-paid 3GB data	Price	Note
2degrees	\$30	300 mins, hot-spotting included, 5G capable
Warehouse Mobile	\$27 <sup>169</sup>	Unlimited mins

Pre-paid 4GB data	Price	Note
Vodafone	\$49 <sup>170</sup>	Carry over data
Kogan	\$25	No data carry over

Post-paid unlimited data	Price	Note
Vodafone	\$80	Max speed data, unlimited hot-spotting
MyRepublic	\$40	Speed limited to 10Mbps, 20GB of hot-spotting before speeds reduced

Postpaid 40GB endless data	Price	Note
Spark	\$85	50GB max speed data, unlimited hot-spotting, Spotify premium included
Trustpower	\$84 <sup>171</sup>	40GB max speed data, no hot-spotting

Source: Providers' websites (accessed February 2023)

As shown here, most MVNOs are able to price their plans below their MNO partners for the equivalent amounts of data. However, they may not be able to match all the plan inclusions of their MNO partners such as hot-spotting.

## International price comparison

To get an indication of how New Zealand mobile prices compare to those overseas, we compared Teligen's price of the cheapest benchmark plan on offer in New Zealand against the cheapest benchmark plan available in OECD countries for two custom baskets.

The baskets were based on average usage for pre-paid and post-paid customers in New Zealand. In 2022, the average usage for a pre-paid customer was 91 minutes of calling, 2.8GB of data and 65 texts. Average usage for a residential post-paid customer was 224 minutes of calling, 6.9GB of data and 129 texts.

169 \$25 28-day plan pro-rated to monthly cost.

170 \$45 28-day plan pro-rated to monthly cost.

171 Consumers who bundle with energy and/or broadband will get 3 months mobile free and a \$5 discount for the life of the plan.

Figure 59: Teligen’s price to meet average prepaid usage (September 2022)<sup>172</sup>

Source: TechInsights

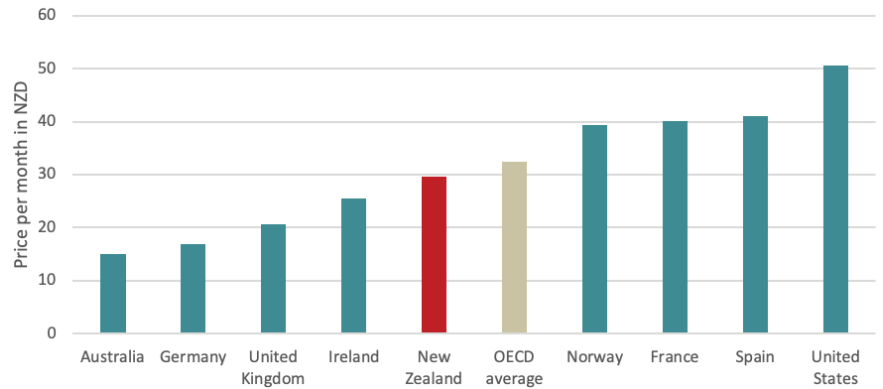
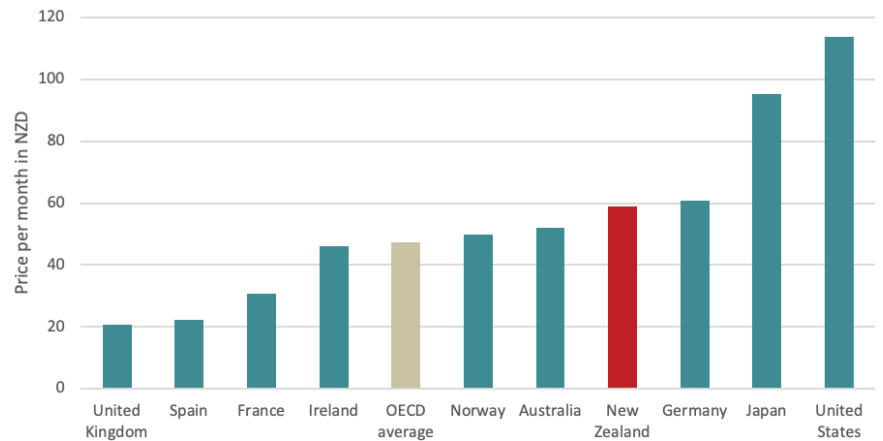


Figure 60: Teligen’s price to meet average post-paid usage (September 2022)

Source: TechInsights



We compare well with OECD averages for pre-paid use (\$2 lower) but are above OECD averages for post-paid use (\$12 higher).

However, with 65% of the post-paid market in 2022 either on endless data or plans providing in excess of 8GB per month, average post-paid customer usage can increase without necessarily paying any more.

This would have the effect of moving New Zealand’s post-paid pricing back towards the OECD average.

<sup>172</sup> Japan is not included as there were no pre-paid plans included in the benchmark.

## The market outcomes produced through infrastructure, wholesale and retail ultimately come down to consumers' usage and their overall satisfaction with the connectivity provided.

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### 2022 Highlights

- Initial customer satisfaction monitoring survey results found that 84% of mobile customers are satisfied with their mobile service.
- Initial survey results show that mobile customers are most satisfied with coverage and availability and least satisfied with customer service.

### Satisfaction

The results below come from the first 2 months of data collection from our monthly customer satisfaction monitoring survey. Data was collected between November 2022 and January 2023 and includes responses from 1,074 residential mobile customers.

The survey is still in its initial stages and therefore the questions and results may change as the survey matures. However, the Commission considers the early results provide useful insights into the views and behaviours of consumers.

## Customer Satisfaction Monitoring

Initial results from our customer satisfaction monitoring survey found that 84% of mobile consumers are satisfied with their mobile service. The survey also asked mobile consumers to rate their satisfaction with various service areas, which are split out

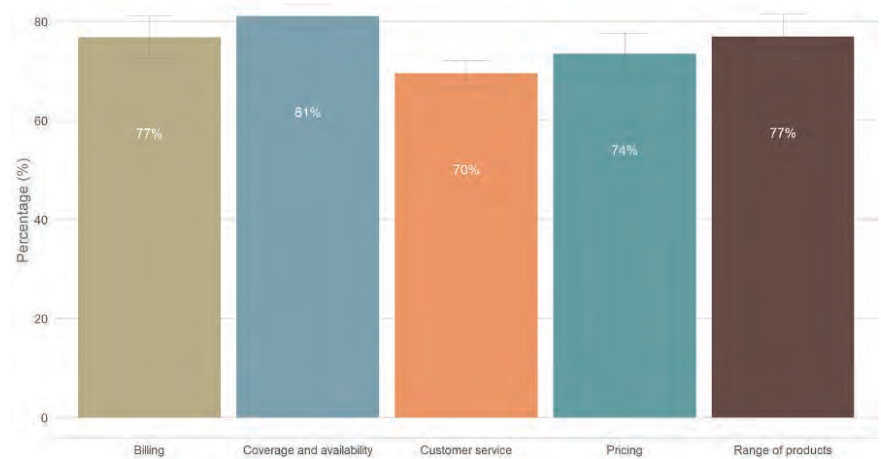
below based on their urban or rural location.

Given the small sample size, it is too early in our process to draw definitive conclusions from the figures below, as can be seen from the wide confidence intervals

(indicated by the light grey lines surrounding the top of each bar). However, as our survey continues throughout 2023, we will be able to confirm what appear to be differences emerging across urban and rural groups.

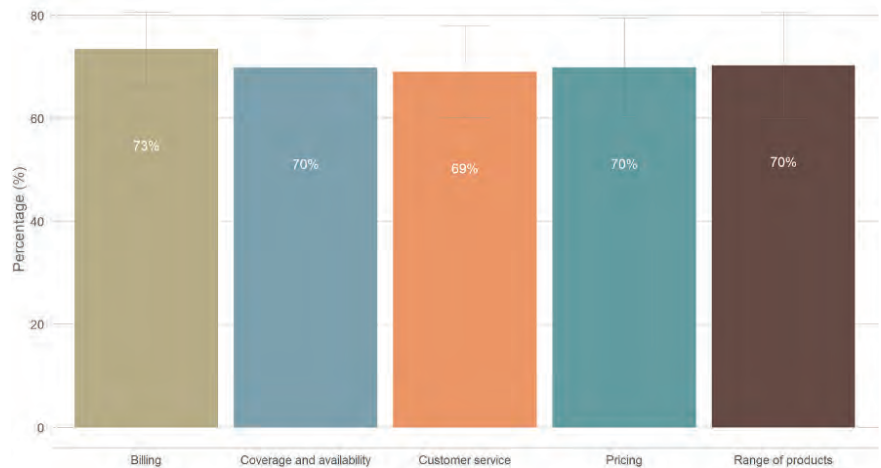
*Figure 61: Satisfaction levels of mobile consumers in urban areas*

Source: Customer satisfaction monitoring survey



*Figure 62: Satisfaction levels of mobile consumers in rural areas*

Source: Customer satisfaction monitoring survey



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# Special topics

Ngā kaupapa  
motuhake

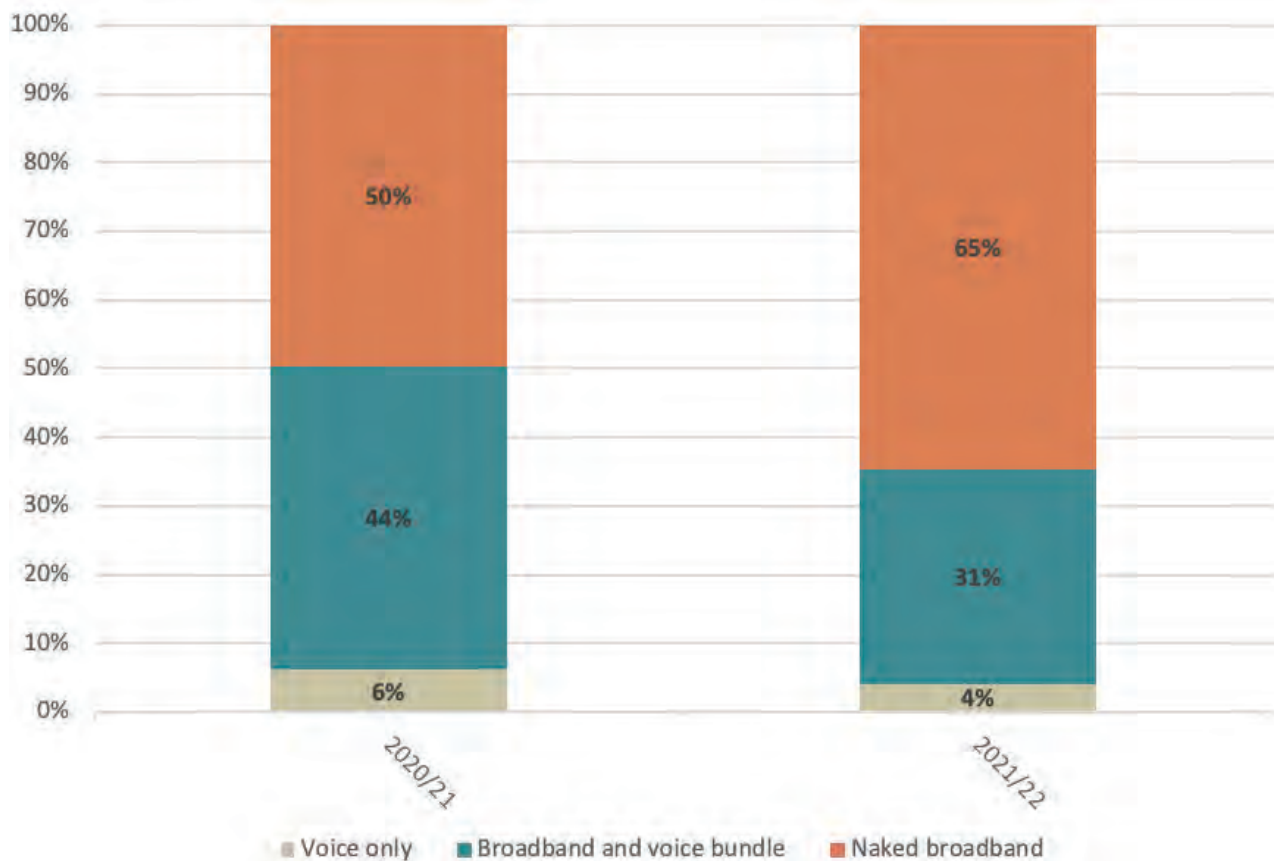


## LANDLINES RAINA WHENUA

Households are moving away from traditional landline services for calling. Landline connections (including broadband-voice bundles) have continued to decline in 2022, down 24% on 2021.

Of the remaining 597,000 residential landlines, the majority are broadband-voice bundles, with fewer than 70,000 residential voice-only connections remaining.

Figure 63: Residential fixed lines by connection type<sup>173</sup>



Source: Industry questionnaire

<sup>173</sup> Due to revisions by some respondents, 2021 results differ to those reported in the 2021 annual monitoring report.



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## PSTN

Spark operates the public switched telephone network (**PSTN**) and wholesales access to other RSPs providing a landline service. The PSTN operates over the copper network, which is owned by Chorus.

In 2020, Spark began switching off the PSTN network on a switch-by-switch, location-by-location basis citing that the network was at the end of its life.

## Price

RSPs typically charge approximately \$10 extra per month to bundle landline services with broadband services.

Spark's 4G wireless landline-only plan costs \$45 per month, while its fibre landline-only plan costs \$55 per month. Where copper landline-only plans are available, Spark charges \$60.20 per month.

Meanwhile, Trustpower retails landline-only plans for \$59 per month.

Our 2022 industry questionnaire indicates that there were at least 104,000 residential customers on the PSTN, which equates to 17% of all residential landline services. This is a drop from 2021, where 21% of residential landline services were served by the PSTN.

The switch-off is ongoing, and a list of affected switches is available on Spark's website.<sup>174</sup>

## Choice

All major RSPs offer landline bundles apart from Skinny. Rural-focused providers such as Farmside, Inspire Net and Wireless Nation also provide landline bundles.

Fewer RSPs currently retail landline-only services. Spark provides three landline-only plans, using wireless broadband, fibre and copper for the respective offerings. Spark only offers new copper landline services where wireless or fibre landline services are unavailable. Trustpower also provides landline-only services.

While landline numbers are falling, it remains an important service for rural areas where mobile coverage doesn't exist and for older consumers who are not confident using a mobile phone.<sup>175</sup>

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174 <https://www.spark.co.nz/shop/landline/landline-migration/>

175 WiFi calling is an alternative option in rural areas provided that there is sufficient bandwidth.

## COMPLAINTS ABOUT TELECOMMUNICATIONS SERVICES

### NGĀ AMUAMU MŌ NGĀ RATONGA TOROTORO WAEA

The Telecommunications Dispute Resolution Scheme (TDRS) is the independent and free dispute resolution service for consumers who have disputes with their telecommunications service providers about mobile, internet and landline services.

It is also the dispute resolution service for disputes relating to the 111 Contact Code and Copper Withdrawal Code.

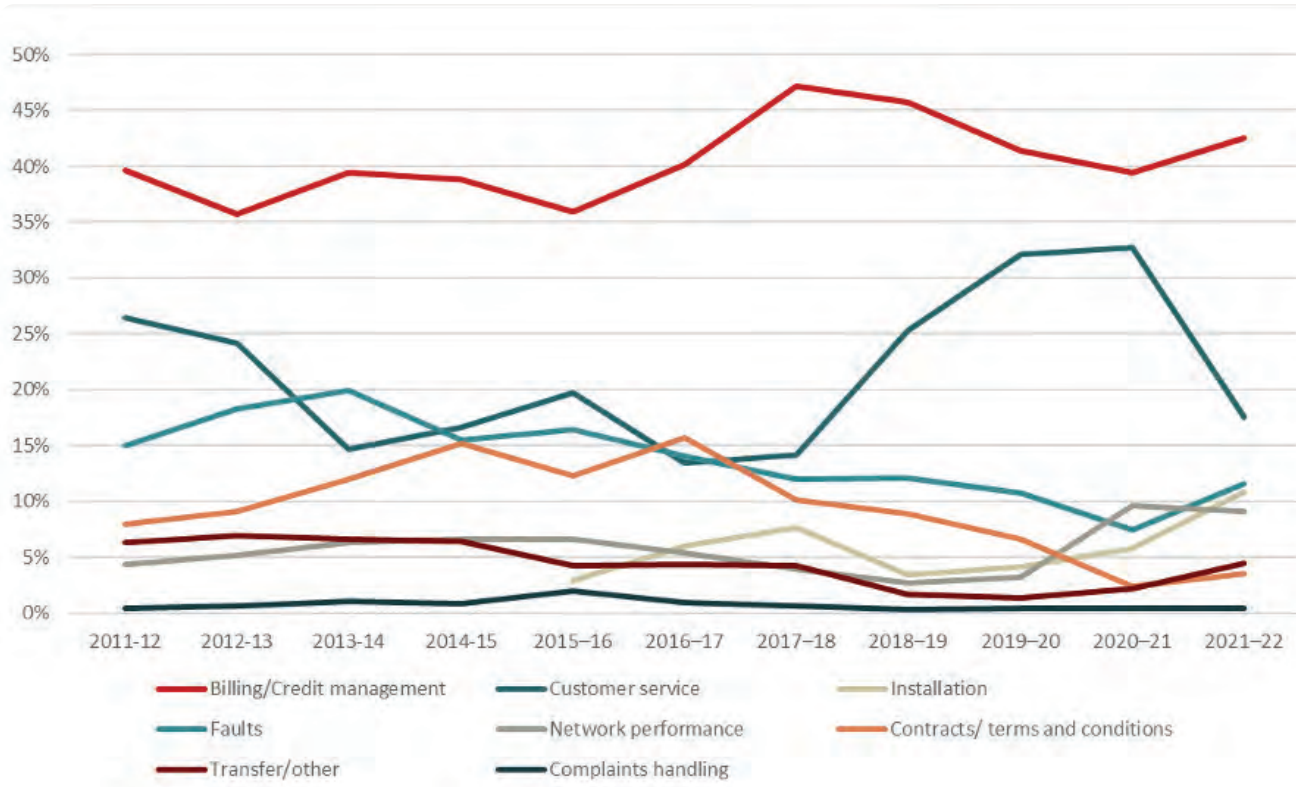
Table 21: Complaints and enquiries to the TDRS

Category	Number of complaints/enquiries 1 July 2021 to 30 June 2022	Percentage of complaints/enquiries
<b>Customer complaints</b>		
Billing	965	43%
Customer service	395	17%
Faults	263	12%
Installation	247	11%
Network performance	206	9.1%
Contracts/terms and conditions	79	3.5%
Transfer	59	2.6%
Other	42	1.9%
Complaints handling	10	0.4%
<b>111 Contact Code</b>		
Customer service	1	0.0%
Vulnerable customer application	1	0.0%
<b>Copper Withdrawal Code</b>		
Customer service	3	0.1%
<b>TOTAL</b>	<b>2271</b>	<b>100%</b>

Source: TDR<sup>176</sup>

176 TDR "TDR Annual Report 2022" page 7 – see <https://www.tdr.org.nz/sites/default/files/2022-11/TDR%20Annual%20Report%202021%E2%80%932022%20final.pdf>

Figure 64: TDRS complaints and enquiries



Source: TDR<sup>177</sup>

Figure 64 shows that billing and credit management have accounted for the highest proportion of complaints each year since 2011/12. The proportion of customer service complaints rose significantly from around 15% of complaints in 2017/18 to over 30% of complaints in 2020/21. However, the proportion of complaints about customer service has dropped to around 17% for the 2021/22 year.

177 Based on TDR annual reports available at <https://www.tdr.org.nz/resources/publications>

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# Market monitoring updates

Kōrero hou a  
te mākete



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## Recently concluded section 9A studies

### Broadcasting transmission services

On 30 June 2022, we published the report we commissioned Network Strategies to produce on broadcasting transmission services in New Zealand.<sup>178</sup> The purpose of the review was to better understand the broadcasting transmission market in New Zealand, how it is performing and how it might develop.

At this stage, we do not propose to proceed with a further detailed investigation of broadcasting transmission services. However, if our monitoring activities indicate a material competition issue or a greater probability of consumer harm, we would consider a more detailed investigation. Some of the monitoring metrics of interest include the growing substitutability between different transmission technologies as well as changing patterns in consumer demand, transmission services revenues, costs and investment. We will include these metrics in the 2024 Telecommunications Monitoring Report in the first instance and annually thereafter.

## Ongoing section 9A studies

### Measuring Broadband New Zealand (MBNZ)

Our MBNZ programme aims to provide consumers with independent information on broadband performance across different technologies, providers and plans to enable them to make confident and informed choices about their broadband.

Our quarterly MBNZ reports compare technologies across several measures, including download and upload speeds, latency, video streaming, social media, online gaming and video conferencing performance.<sup>179</sup> We are currently working to expand the programme to cover more providers and services, with a focus on improving our coverage of 4G, 5G and WiMAX wireless and satellite technologies and of rural experiences.

## Upcoming section 9A work

### Connectivity in rural areas study

We are in the process of setting up a study to look at connectivity in areas where fibre is not available. We intend to look at the availability, performance and consumer satisfaction of rural phone and broadband technologies. This study will be a key input to the upcoming statutory review of regulated copper services in 2025.

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<sup>178</sup> Commerce Commission "Broadcasting transmission services market review" (1 June 2022) – see [https://comcom.govt.nz/\\_data/assets/pdf\\_file/0033/286179/Network-Strategies-Broadcasting-transmission-services-market-review-1-June-2022.pdf](https://comcom.govt.nz/_data/assets/pdf_file/0033/286179/Network-Strategies-Broadcasting-transmission-services-market-review-1-June-2022.pdf)

<sup>179</sup> MBNZ quarterly reports can be found at <https://comcom.govt.nz/regulated-industries/telecommunications/monitoring-the-telecommunications-market/monitoring-new-zealands-broadband/Reports-from-Measuring-Broadband-New-Zealand>

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