



# NEW ZEALAND TELECOMMUNICATIONS FORUM ANNUAL REPORT 2024



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# **CEO MESSAGE**

If there's one constant in telecommunciations, it's change. Every year brings a new technology, a new choice and a new way of connecting with friends and family.

We invest more than \$1.6 billion<sup>1</sup> in both fixed and mobile networks annually, on everything from the poles that hold up the cellphone network equipment to the software that keeps the networks humming, to the batteries that are ready for a power outage.

Today, copper is at the end of its useful life with over 87% of us able to access fibre to the home, leaving only around 40,000 residential copper landlines remaining, and that number is falling rapidly. Fibre delivers state of the art broadband at speeds we could once only dream of, enabling a better consumer experience in the home and delivery of a range of IoT solutions. The introduction of 5G services means we need to say goodbye to an entire generation of mobile technology as we shut down 3G. When 3G was introduced 15 years ago it was great, but today we can repurpose the spectrum for faster, more efficient networks to help meet the new levels of customer demand. As technology continues to advance and demand increases, keeping legacy technologies going makes no sense, but this also requires pragmatic engagement from government.

And, just as our technology changes, so too does our use of telecommunications. Voice calls and text messages are just the beginning, and today we use our networks for work, games, entertainment and so much more. With that comes the risk of more scams, more fraudulent activity and a need for awareness of the world in which we all operate. Helping customers understand how to fight back is a key issue for the sector.

We also need to consider the world around us in other ways. Our impacts on the environment are very much upper most in mind, and how we manage the life cycle of the products we all use every day is a key feature of the telco sector.

New Zealand telecommunications continue to deliver increased choice and quality of service. With fibre, 5G mobile, fixed wireless and now low earth orbit satellite we're seeing more capacity, more capability and more resilience throughout Aotearoa. The transition to future technologies will continue to be a key focus for the telecommunications industry.

In the year ahead we look forward to working with the new government on its National Infrastructure Plan and to telecommunications taking its place as a key enabler of economic growth for New Zealand.



Welcome to our annual report, where you'll find more information about the great work our New Zealand telecommunications industry has been doing over the past year. >>>

**Paul Brislen, CEO** New Zealand Telecommunications Forum (TCF)

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TCF ANNUAL REPORT 2024

# New Zealand Telecommunications Sector Timeline





## **New Zealand Telecommunications Sector Timeline**

# **Industry Snapshot**



1.96M fixed broadband connections.<sup>3</sup>

Satellite connections make up 14% of rural connections.<sup>4</sup>

NZ ranks I in the OECD for the number of fixed wireless connections per 100 inhabitants.<sup>5</sup>

In 2023, there were 106000 MVNO subscribers, up 37% from the year before.<sup>6</sup>

Average 5G download speeds are 251.6 Mbps – placing New Zealand in the top 15 global markets in Opensignal testing.<sup>7</sup>

Landline connections dropped by 33% since last year. Only 40,000 residential voice only lines remain.<sup>8</sup>

Cost of living has increased by 20% since 2018, while the cost of telecommunication services has fallen by around 1%.9

2-8 <u>Commerce Commission Annual Monitoring Report 2023</u> 9 <u>Statistics New Zealand</u>

















# Infrastructure and investment

Telecommunications connects markets, enables new technologies and is becoming increasingly essential for accessing key services such as education, health, finance, and government services. New Zealand's telecommunications sector includes a number of privately-owned companies, with government-led investment now often blended with private capital to provide infrastructure. The combination of existing broadband and mobile infrastructure has been successful in providing high-quality internet services across New Zealand. This success has been compounded by the ever-growing importance of connectivity as shown through Covid-19.

New players joining the sector include those focused on rolling out the tower infrastructure to support increased access and quality of telecommunications infrastructure. Successful government and industry partnerships continue to invest in expanding coverage to harder to reach communities and the sector continues to evolve technologically, to expand the quality and offerings of telecommunications services to support increasing user performance demands (speeds and data consumption) that New Zealanders require in their daily lives.

#### "The competitive nature of the telco sector drives high paced innovation and evolution of improved technologies."<sup>10</sup>

The TCF has been working closely with government and officials highlighting our member's concerns regarding regulatory barriers to expanding and upgrading networks to meet increased consumer demand. Telecommunications network operators need to engage with the resource management system to be able to install, maintain and upgrade network infrastructure such as fibre optic cables and cell towers. The National Environmental Standards for Telecommunications Facilities (NESTF) sets national standards for much of this activity. The government has recently announced its support to update the NESTF and the TCF are working closely with officials on this process.

Telecommunications investment as a percentage of revenue remains extremely high even though UFB programmes are largely complete, with mobile network investment stepping up in its place, refer to chart 1.



10 PWC report for Te Waihanga

# **Telecommunications Sector Investment**



Chart 1: Telecommunications investment as a percentage of revenues

"The telecommunications sector is well placed in terms of the services that New Zealanders can access, compares favourably with other countries in the OECD, and performs strongly relative to other infrastructure sectors."<sup>12</sup>

#### Chart 2: New Zealand telecommunications investment<sup>13</sup>



11,13 <u>Commerce Commission Annual Monitoring Report 2023</u> 12 <u>Te Waihanga State of Play Telecommunications Report</u>

## **Consumer protection**

As more aspects of our lives move online and we access more services digitally, this brings an increased risk of online fraud. Phishing scams, investment fraud and countless other types of scams mean we all need to be aware of our own security when online. The TCF continues to facilitate work with its members to keep ahead of scam trends and develop new disrupting initiatives.

#### **Technical solutions:**

- Block fraudulent calls from outside New Zealand that pretend to be from New Zealand banks and government agencies.
- Mobile Operators require customers to confirm they are moving their number to a new provider via a two factor authentication process.
- Scam prevention tools including SMS firewalls, bot automation and other detection technology that searches for keywords and spikes in unusual activities and number spoofing.
- In New Zealand short codes (e.g. 3883, 5070) are the only way a business can legitimately send a customer communications via SMS message. These are registered with the mobile operators.
- Telcos work with the National Cyber Security Centre to run the Malware-Free Network (MFN) which offers threat detection, disruption and intelligence system for New Zealand organisations. This means where we know of campaigns targeting New Zealanders the links won't work, saving customers from potential fraud or money loss. In July the service reached 10 million disruptions.
- The TCF runs an online blocklisting service which enables New Zealanders to check the status of a second-hand mobile handset before purchasing. This function enables mobile operators in New Zealand to block phones that have been listed as stolen. Find out more about the TCF free <u>look-up service</u>.

The TCF coordinates anti-scam activities across the sector, raising consumer awareness and supporting cross sector work with the banking sector and government agencies.



#### **Cross-sector collaboration:**

- Monitoring of scams and trends through the industry TCF Scam Prevention Working Group.
- The TCF Fraud Awareness Seminar is held each quarter to share information with partners and sectors regarding new scam activity.
- The TCF coordinates with international partners about scams trends overseas and learn how to counter them before they arrive here.
- The TCF is a member of the Ministry of Business, Innovation and Employment's (MBIE) Interagency Fraud Working Group which comprises telcos, banks, service organisations, law enforcement and other government agencies every month.
- Members work with law enforcement to support Intelligence gathering operations.



Scams cost the New Zealand economy \$20 annually.<sup>18</sup>



Phishing and credential harvesting still the 700 most common category reported by CERT NZ.

15

56.7 m in losses were reported to Cert NZ for Q1 2024, up 15.5% year on year.

238,000 reports of scams received to DIA in 2023, 90 times more than in the previous three years.<sup>17</sup>

#### **Other protections:**

The TCF is a member of the Independent Reference Group that is tasked with maintaining oversight of the operation of the Digital Child Exploitation Filtering System (DCEFS) to ensure that it operates with integrity and adheres to the principles set out in the Code of Practice. The DCEFS is managed by Te Tari Taiwhenua (the Department of Internal Affairs).

In 2023 there were over one million (1,149,570) access attempts known to harbour child sexual abuse material blocked.<sup>20</sup>

73% of New Zealanders express "extreme or very high concern" about young children accessing inappropriate content online.<sup>21</sup>



14 Consumer Protection, MBIE 15,16 Cert NZ Q1 2024 Cyber Security Insights

- 17 <u>Radio New Zealand, June 2024</u> 18 <u>Netsafe New Zealand</u>
- 19 CERT NZ, Cyber Security Tracker 2024
- 20 Department of Internal Affairs
- 21 Internet NZ Insights report, 2023

## Resilience

Enabling consumers to stay connected in times of an emergency and having the ability to access telecommunications services are important for a sector that is a provider of critical infrastructure.

Our infrastructure includes the physical assets (such as fibre optic cables and cell towers) and IT systems needed to run telecommunications networks that New Zealanders rely on during emergencies and in normal times.

Our members take resilience and emergency response very seriously. At the individual company level this is done through ongoing network investment, business continuity planning and incident response process. Each company has its own plan for managing risk, minimising impact on customers, and restoring services as quickly as possible.





Our members invest in network improvements and resilience on an ongoing basis (around \$1.6 billion per year to maintain and upgrade networks), including:

- Transitioning to more resilient technologies e.g from copper to fibre networks.
- Building more diversity into core networks that connect cities and towns.
- Investing in mobile connectivity that is enabled by satellite to provide additional redundancy when terrestrial mobile networks are down.
- Improving network capability through 5G and network capacity upgrade programmes.
- Exploring alternative pathways for core trunk routes and sharing infrastructure corridors.
- Auditing and investing in backup power requirements.
- Risk assessments to avoid single points of failure.
- The NGCC/Hourua partnership on the new public safety network which will improve communications for emergency services.

# **Emergency Management**

At the sector level, during an emergency, we come together as the Telecommunications Emergency Forum (TEF). The role of the TEF is to enable effective coordination of emergency response across the sector when an event may impact national or regional telecommunications. The TEF acts as a conduit between its members and NEMA, Regional Lifelines Groups, Civil Defence other critical infrastructure sectors and government agencies.

The TCF is the sector coordinating entity for telecommunications and administers the TEF which has 20 members, including Transpower. Recent emergency preparedness work across the sector includes:

- Working with TEF members to improve operational processes and standardise reporting.
- Engaging through NEMA's Inter-Infrastructure Coordination Working Group to discuss cross sector improvements and planning for civil defence events.
- Developing a sector wide emergency response plan.
- Community engagement through regional councils and lifelines groups to help resolve telecommunications resilience concerns.
- Developing a consumer 'be prepared' campaign to educate consumers on how to be prepared in an emergency which may affect telecommunication services.

The Telecommunications Emergency Management Plan (TEMP) provides a readiness planning framework that enables the sector to respond to emergency events. As the Sector Coordinating Entity for telecommunications, our role is to ensure the sector responds as quickly as possible to events that might overwhelm the telecommunications network and restore services to affected communities.

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# Fibre

Since the launch of fibre to the home in New Zealand in 2009, Kiwis have taken to the new technology with just under 1,387,460 homes and businesses connected to UFB across New Zealand and 656 marae.<sup>22</sup> The are four local fibre companies and a number of WISPs deploying their own fibre networks in rural areas.

Fibre allows New Zealanders to do more with their internet connection, from playing games or watching television and movies, to working and studying from home and connecting their friends, whānau and communities. New Zealand has one of the highest uptake rates of fibre to the home in the OECD, with Chorus having reported a 40% growth per annum in data traffic.

Fibre technology delivers speeds far beyond those of traditional copper-based connections and the demand for reliable, high-speed internet has surged, surpassing the early speeds offered at the beginning of the UFB rollout. Common fibre plans now offer speeds of up to 300Mbps, with premium options delivering 900Mbps to 1 Gbps for home users. The rollout of gigabit fibre plans has enabled users to experience seamless connectivity, reducing latency and improving the quality of digital services. This trend has also positioned New Zealand as a leader in broadband infrastructure.<sup>23</sup>



22,28 <u>CIP Connectivity Quarterly Report March 2024</u>
23 <u>Chorus</u>
24 <u>CIP Annual Report 2023</u>
25,26 <u>Commerce Commission Annual Monitoring Report 2023</u>
27 <u>Chorus 2023 full year financial results</u>
29 <u>OECD Economic Outlook, Volume 2023 Issue 1</u>

Of households or over 1.8m homes and businesses able to access fibre services, after the completion of the Ultra Fast Broadband (UFB) programme.<sup>24</sup>

57% of all fibre connections are 300Mbps fibre plans.<sup>25</sup>

24% of fibre connections were IGbps or higher.<sup>26</sup>



increase in average household data use, from 300GB/month in 2018 to 585GB/month in 2023, higher than the peak during COVID lockdown.<sup>27</sup>

Over \$2.10 invested into the UFB project to date.<sup>28</sup>

New Zealand has the 9th highest percentage of fibre connections in the OECD.<sup>29</sup>

# Mobile and fixed wireless

Cellular infrastructure and services reach out to the most remote locations across New Zealand and is often the first to be restored in an emergency event, so it is critical to New Zealand communities. It also supports aviation, transport, broadcast and emergency services.

The ever-evolving next generation technologies such as 5G will significantly improve data speed and capacity for conventional mobile and fixed wireless broadband networks, as well as providing new opportunities for the Internet of Things (IoT), and ultra-reliable and low latency communications.

New Zealand's mobile service can be accessed by 98% of the population and is delivered by three Mobile Network Operators: 2degrees, One New Zealand and Spark and nine Mobile Virtual Network Operators (MVNOs). All three mobile network operators have plans to take their 5G networks further which currently reaches 27% of the population. Connexa and FortySouth build, operate and maintain the majority of tower infrastructure in New Zealand.

Fixed wireless can be provided over various types of technology including cellular, noncellular such as radio frequencies and satellite to offer broadband services to residential and business customers across New Zealand and Wireless ISPs (WISPs) are building networks of their own on a hyper-local scale, serving the communities in which they live.



3G and 4G coverage reaches 90% of the population.<sup>30</sup>

5G coverage reaches 27% of the population and continues to expand.<sup>31</sup>

6.5M active cellular mobile connections, an increase of 11.9% over the previous year.<sup>32</sup>



6.3% increase in average monthly mobile data usage over the previous year.<sup>33</sup>

NZ ranks 4 in the OECD for the number of fixed wireless connections per 100 inhabitants.<sup>34</sup>

Increase of 31% in wholesale fixed wireless connections (2022 – 2023).<sup>35</sup>

The 500th RCG site in Anawhata, Piha, features 300 Solar panels and a generator for added resilience.



# **Rural connectivity**

Rural connectivity in New Zealand is a crucial aspect of the country's infrastructure, aiming to bridge the gap between urban and remote areas. The rollout of new technology and expanding infrastructure deployment is reducing the urban rural divide. Funding partnerships with government have enabled investment to expand high-speed internet and mobile networks to ensure that rural communities benefit from modern communication technologies. By addressing the challenges of geographical isolation and promoting digital inclusion, the sector is working to create a more equitable and connected society.



The Rural Connectivity Group (RCG) delivers services to rural New Zealand through a partnership between the Crown Infrastructure Partners and the Mobile Network Operators: 2degrees, One New Zealand and Spark.

Continuing to build critical infrastructure this year, RCG turned on its 500th tower, a cell site that is entirely off the electricity grid (see image on page 19). The site requires a solar array and diesel generator that runs up to four hours each day to provide the power needed to keep the site active.

## Satellite



New Zealand has the highest number of connections per capita in the OECD with 37,000 satellite connections, making up 14% of rural connections.<sup>44</sup>

While satellite services have been available for many years, the new move to launch smaller, lower orbit satellites has proved incredibly useful in providing broadband coverage in remote parts of the world. Geo-stationary satellites networks and LEO satellites provide services to all parts of New Zealand where you can see the sky and receive a satellite signal.

In addition, the mobile network operators are also looking at LEO satellites to provide cell phone coverage in places where the current cell phone networks can't reach.





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# Legacy technologies

As a sector we are committed to improving the efficiency of our networks and infrastructure, replacing legacy technologies with modern alternatives that have lower emissions profiles and are more sustainable. For example, by replacing the copper network with more energy efficient fibre or the 3G network with the 10 times more energy efficient 5G technology.<sup>45</sup>

Between 1950 – 1987, the number of people waiting for a telephone connection ranged from a low of around 10,000 to a high of over 50,000. After reforms in 1987, telephone waiting lists quickly declined to less than 1,000 people.<sup>46</sup>

#### **3G networks shutdown**

Operators around the world, including New Zealand, are shutting down their 3G networks to free up spectrum for 4G and 5G networks. All three New Zealand mobile network operators will turn off 3G in 2025. While 3G has played an important part in the evolution of mobile technology, modern networks make better use of the spectrum, providing faster services and using less power.

Mobile network operators are communicating directly with their customers via emails, phone calls, and SMS to give them plenty of notice that the shutdown is happening and support them in the transition. Customers who are still using 3G reliant devices will need to upgrade to a newer device before the networks are switched off to retain connectivity.



## The journey of copper

drop in copper broadband connections in urban areas.<sup>47</sup>



53,000 urban Kiwi households moved off copper to a better broadband alternative.<sup>4</sup>



Only 40,000 residential voice-only copper lines remain.49



A O drop in landline connections dropped since last year. <sup>50</sup>



of rural households are within the coverage area of at least one WISP network.<sup>51</sup>





While copper lines have been the mainstay of the fixed line network around the world for decades, they have a limited future for three key reasons. Firstly, they can't meet the consumer demand for ever increasing levels of broadband capability. Copper simply isn't fast enough for today's market. Secondly, copper uses more power and is far less resilient than competing technologies like fibre. And thirdly, when copper lines get wet or damaged they overload, destroying the electronics needed to run the network. Rebuilding a copper network after an event takes longer and costs more than either mobile or fibre networks, with Chorus reporting they restored fibre services twice as fast as copper services after Cyclone Gabrielle.

Chorus has announced that by the end of the decade it will switch off the last copper lines in New Zealand, giving Kiwis plenty of notice to move to a more modern, high performance network. In the year to 30 June 2023, copper broadband connections in urban areas fell 41% to 77,000 which indicates that consumers are already heading the call.<sup>52</sup> Chorus has commenced with its copper withdrawal programme in areas where fibre is available and RSPs are actively moving their customers onto other technologies which deliver faster speeds and a more reliable internet service.

In parallel to the copper withdrawal programme, Spark has been retiring its Public Switched Telephone Network (PSTN) in areas where more modern technology is available. PSTN switch off around the world makes it increasingly difficult to find the equipment needed to run the PSTN locally, so the switch off is inevitable.



# Sustainability

Sustainability is an area of increasing focus as Aotearoa strives to address environmental challenges. By investing in sustainable industry best practice, increasing consumer awareness, encouraging the adoption of greener devices and moving toward a circular economy the telecommunications sector can play its part.



#### Preparing for the impacts of climate change

Members of the TCF's Climate Change Working Group have been working together to better understand and prepare for the impacts of climate change on telecommunications. The group has explored three possible futures with different levels of temperature change:

- An orderly transition: where climate change is taken seriously by governments, economies transition to renewables and emissions reduce. In this world the climate system begins to stabilise, and extreme weather events become less severe and frequent.
- A hothouse scenario: where New Zealand and the world abandon emissions reduction targets. There are unprecedented weather events that cause significant damage to critical infrastructure and threaten the viability of services in some areas.
- A disorderly transition: where governments take too long to decarbonise and bring in adaptation measures. The cost of adaptation is much higher as a result.

You can read more about the three scenarios in the '<u>TCF Telecommunications Sector Climate</u> <u>Change Scenario Report</u>.'<sup>54</sup> TCF members will be using the scenarios to inform more detailed risk identification and assessments, and resilience investments and network planning at the organisation level.

#### **Product Stewardship**

The TCF RE:MOBILE product stewardship scheme encourages New Zealanders to donate their unwanted mobile phones and accessories for re-use, refurbishment or recycling. Its aim is to reduce the environmental impact of these devices and equipment and raise consumer awareness about taking more sustainable actions.

<u>RE:MOBILE</u> is a not-for-profit product stewardship scheme with funds received from the scheme donated to the appointed beneficiary, Sustainable Coastlines. The scheme is currently working toward product stewardship accreditation under the Waste Minimisation Act in consultation with the Ministry of the Environment.







## **About the TCF**

The TCF enables the industry to work together more efficiently and effectively to provide the best possible outcomes for telecommunications consumers a<u>cross Aotearoa</u>.

The TCF plays a vital role in bringing together the telecommunications industry to resolve regulatory, technical and policy issues through actively fostering co-operation and collaboration among the telecommunications industry, other sectors, stakeholder agencies and the government.

## **Our Board**



MARK AUE CEO CHORUS



JOHN HANNAH CEO TUATAHI FIRST FIBRE



JASON PARIS CEO ONE NEW ZEALAND



MARK CALLANDER CEO 2DEGREES



JOLIE HODSON CEO SPARK



KARL ROSNELL CEO DEVOLI



JOHNATHAN EELE CEO ENABLE NETWORKS



DARREN MASON CEO NORTHPOWER FIBRE



# **Our Members**

The TCF's diverse membership represents more than 55 brands across the New Zealand telecommunication landscape, and more than 95 percent of New Zealand telecommunications customers. Our members include the operators of fixed line (fibre and copper) and mobile networks, retail service providers, wireless ISPs (WISPs) and tower companies.

The diverse membership of the TCF reflects its commitment to fostering collaboration and addressing the multifaceted aspects of the telecommunications industry in New Zealand. This approach ultimately results in a more competitive, innovative, and consumer focused telecommunications landscape.



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The TCF produces industry codes of practice and guidelines across a range of telecommunications topics, refer to page 30 and 31.

The TCF also provides a range of consumer services including:

- Number Portability: enables consumers to seamlessly switch their mobile or fixed line service provider and keep their phone number.
- An IMEI mobile device look-up service: for consumers to check whether a handset has been block listed before purchasing.
- Education and information on scams: to ensure consumers have the right tools to protect themselves against online, phone calling and texting fraud.
- RE:MOBILE: a mobile phone recycling service which collects unwanted mobile phones across the country.
- Education on new and emerging technologies: helping consumers understand their options when transitioning off legacy copper-based services.
- Support for consumers: to port their numbers securely through a two-factor authentication step.
- Telecommunications Emergency Forum: The TCF is the sector coordinating entity for the telecommunications sector and organises the Telecommunications Emergency Forum (TEF).

# Submissions

- MBIE discussion document: enhancing telecommunications regulatory and funding frameworks
- 2024 Review of the Telecommunications Disputes Resolution Scheme
- Copper Services Investigation under section 69AH of the Telecommunications Act 2001 Environment Committee re the Fast-track Approvals Bill
- Matters to include in the second resource management amendment Bill
- Commerce Commission re draft Product Disclosure Retail Service Price and Cost Guidelines
- MFE proposed regulations on importing and exporting e-waste
- MFE consultation re second emissions reduction plan
- MBIE discussion document: enhancing telecommunications regulatory and funding frameworks
- Proposed policy statement for natural hazard decision making
- Commerce Commission re Copper Withdrawal Code review
- Submission on the Emergency Management
  Bill
- Environment Committee inquiry into climate adaptation
- DPMC on lifting resilience of critical infrastructure consultation
- Climate Change Commission advice re second emissions reduction plan
- MBIE on the Consumer Data Right Exposure draft Bill
- Auckland Council re Auckland's draft future development strategy

To view all of our submissions visit: TCF website > Industry > Submissions



## TCF CODES, SCHEMES, GUIDELINES & STANDARDS

#### **CODES & SCHEMES**

Broadband Marketing Code 2022	Sets out the key principles providers should adhere to when marketing broadband Telecommunications Services to Consumers.
Broadband Product Disclosure Code 2022	The minimum requirements that providers must include to consumers on fixed line, mass market broadband services, to allow consumers to easily compare broadband plans. Includes: Guidelines for Traffic Management and Service Restrictions.
Code Compliance Framework Code	Describes the compliance framework that enables the industry to self-regulate through its code regime, to increase consumer and regulatory confidence in the provision of Telecommunications Services.
Copper and PSTN Transition Code 2022	Sets out requirements that RSPs must meet when their customers are transitioning away from copper-based services due to copper withdrawal, PSTN switch off or a commercial decision means copper services will no longer be available in that area.
Co-siting Code 2007	To enable a cooperative approach to co-siting radio & mobile communications equipment when landlord consent is required from the incumbent party before granting rights to a co-siting Party.
Customer Care Code 2023	Providers must establish and publish a customer care policy that includes the minimum standards of practice a provider will follow when engaging with Consumers and a complaint handling process.
Customer Transfer Code –(Copper) 2013	A regulated telecommunications access code. To facilitate a seamless transfer of a customer's copper telecommunications service between retail service providers that is consistent with the purpose and provisions of the Telecommunications Act.
Customer Transfer Code (Fibre) 2022	To facilitate a seamless transfer of a customer's fibre telecommunications service between retail service providers that is consistent with the purpose and provisions of the Telecommunications Act.
Disconnection Code 2017	Describes disconnection standards to enable Providers to develop and implement fair and consistent disconnection policies to their residential customers.
Emergency Services Calling Code 2022	Specifies call quality and customer information standards for voice calls to emergency services to improve the delivery of emergency calls and promote user confidence in emergency services calling.
Fibre Installation Code 2020	To ensure nationally consistent processes for the installation of fibre services at a consumer's premises by describing an agreed set of requirements during the end-to-end customer journey.
IMEI Block Listing Code 2023	To discourage the theft and fraudulent acquisition of mobile handsets by disconnecting the handsets from all mobile networks in NZ and some overseas jurisdictions. Applicable to only mobile network operators.
International Mobile Roaming Code 2018	To help raise awareness of IMR services to consumers, including tariffs and likely costs for mobile roaming.

## TCF CODES, SCHEMES, GUIDELINES & STANDARDS

Mobile Messaging Services Code 2021	To encourage the responsible delivery of mobile phone messaging services that are compliant with legal and regulatory obligations.
Product Stewardship Scheme for RE:MOBILE	Operational requirements for the RE:MOBILE product stewardship scheme for the re-use and recycling of mobile phones.
Scam Prevention Code 2022	To enable the sharing of scam calling and text messaging information to reduce the number of scams operating in New Zealand and affecting consumers.
	GUIDELINES & STANDARDS
Community Engagement for Telecommunications Infrastructure Guidelines 2018	Industry guidelines to assist wireless Network Operator's with their community engagement obligations in relation to new or upgraded wireless facilities.
International Revenue Share Fraud Guidelines 2016	Guidelines to enable a collaborative approach across international boundaries to reduce or eliminate the incidence and effects of IRSF on Australasian telecommunications providers and their customers.
Interception Guidelines 2009	To help Network Operators and Service Providers comply with the Telecommunications (Interception Capability) Act in an efficient, timely and cost-effective manner.
Interconnection of Voice over Internet Protocol (VoIP) Technical Standards 2012	To provide a baseline Network-to-Network Interconnection standard that enables New Zealand network operators to interconnect IP networks.
Premises Wiring Guidelines for installers & consumers 2021	Guidelines for the installation of generic or structured cabling (including fibre optic) for telecommunications services in residential/business and multi-dwelling unit premises. Includes information to consumers on residential premises wiring to support the latest telecommunication technologies within the home.
Principles for Telecommunications Infrastructure for new Subdivisions 2010	To provide Local Government Authorities with guidelines for minimum standards for developers when telecommunications infrastructure is being installed in new sub-divisions.
SIP ATA Standard for LFC Wholesale Service 2022	Define the wholesale standard for VoIP access services using the UFB Voice Access Service.
SIP ATA Standard for LFC Wholesale Service 2022	To provide a minimum set of requirements for the industry to deliver UFB Layer 2 services across the UFB network, and to define the supporting service level terms key principals.
UFB Ethernet Access Standards 2017	Describes disconnection standards to enable Providers to develop and implement fair and consistent disconnection policies to their residential customers.
UFB OSS BSS Business Interaction Framework 2014	To define minimum requirements to deliver UFB OSS/BSS processes in a consistent manner across all four LFCs. These specifications are drafted into the 'UFB Business Interaction Framework' document.



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