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INNOVATION & EMPLOYMENT**
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Review of the Telecommunications Act 2001

Discussion Document



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Summary of abbreviations

BAU: Business as usual

CFH: Crown Fibre Holdings

DSLAM: Digital subscriber line multiplex

GB: Gigabyte

LFC: Local Fibre Company

LLU: Local loop unbundling

LTE: Long Term Evolution

Mbps: Megabits per second

MVNO: Mobile virtual network operator

OECD: Organisation for Economic Co-operation and Development

OTT: Over-the-top

PSTN: Public switched telephone network

RBI: Rural broadband initiative

RSP: Retail service provider

SMS: Short message service

TCF: New Zealand Telecommunications Forum Inc.

TSLRIC: Total service long run incremental cost

TSO: Telecommunications service obligations

UBA: Unbundled bitstream access

UCLL: Unbundled copper local loop

UCLFS: Unbundled copper low frequency service

UFB: Ultra-fast broadband

VDSL: Very high bit rate digital subscribers line

VOIP: Voice over internet protocol



Glossary

4G:	The next generation of mobile technology. The term '4G' is commonly used interchangeably with 'LTE'
700MHz spectrum:	Refers to a band of the radio spectrum, previously used for analogue TV transmission. As broadcasters move to use other spectrum for digital transmission, the 700 MHz spectrum is becoming available for 4G mobile use.
Allocative efficiency:	An economic term referring to the efficiency that arises when service providers offer the services that the market wants.
Backhaul:	Backhaul is the capacity between nodes in a network.
Broadband:	Broadband is a very general term that refers to the wide bandwidth, or high capacity of a connection.
Cabinetisation:	is the process of installing cabinets in a copper telecommunications network in order to reduce the length of the individual copper pair connections to customers, enabling higher speed broadband connections.
Convergence:	Historically, different networks were needed to deliver different services (such as voice, data and broadcasting). Modern internet protocol networks are capable of delivering a wide range of services, and the evolution of markets to take advantage of this is termed 'convergence'.
Copper:	The original telephone network is a copper network. It allows electrical currents to flow, and was designed for exclusively for telephony. The copper network will eventually be replaced by a new fibre network.
Depreciated:	Depreciation is a term used in accounting and economics. It is the way in which the reduction in value of an asset over time is recognised.
Dial-up:	A way of accessing the internet through the telephone network. Dial-up access is relatively low speed and is not always available.
Dynamic efficiency:	Refers to the degree to which a market balances short run concerns (static efficiency) with concerns in the long run (focusing on encouraging innovation and investment).
Fibre or fibre optic:	An optical fibre is a very thin strand of glass that is used to transport information via a beam of light.





Fibre-to-the-Home:	A network where the optical fibre is run all the way to the house (as opposed to being run to a cabinet) is called a fibre-to-the-home (sometimes FTTH) or fibre-to-the-premise (FTTP) network.
Fixed line voice:	Voice service (telephony) provided over fixed lines (as opposed to mobile networks)
Local Fibre Companies	Companies formed with the Government's partners in the UFB initiative (other than Chorus) to deliver wholesale fibre services.
Low frequency service:	On a copper pair, low frequency refers to the frequencies that allow the transmission of voice. Broadband is carried over much higher frequencies.
Mobile termination rate:	The rate that a mobile service provider charges another mobile service provider to terminate a call originating in the other network. For example, an XT customer rings a Vodafone customer. Vodafone will charge the XT network for carrying the call through Vodafone's network and connecting the call to its customer. This charge is for mobile termination, and the rate is the amount the terminating network is permitted to charge.
Net neutrality:	The principle that all internet traffic should be treated the same.
Naked broadband:	Broadband where traditional voice service is not also provided over the same line.
On-net and off-net calling:	On-net calling occurs in networks when the called handset and the calling handset are on the same network. Off-net calling occurs when they are on different networks.
Over-the-top:	Over-the-top (OTT) services are offered to consumers over third-party broadband networks. Examples are Skype and YouTube.
Price elasticity:	Price elasticity refers to the way in which demand varies as prices change. Usually the more expensive a service is, the lower the demand for it, and vice versa.
Productive efficiency:	Productive efficiency is concerned with producing goods and services with the optimal combination of inputs to produce maximum output for the minimum cost.



Traditional voice service:

Voice services provided over traditional telephony networks (telephone exchanges and copper networks).

Unbundle:

Unbundling is where a company gets access to Chorus's copper network and installs its own equipment at the exchange so that it can offer its own broadband service as opposed to buying Chorus's own UBA service. Unbundling provides the unbundler with more freedom in choosing the parameters of the service it offers.

Voice over Internet Protocol:

Voice service provided over a data network using internet protocol. Note that this is not necessarily a voice service provided over the Internet.



Foreword



Technological advances are expanding markets and increasing demand for data and bandwidth at a dramatic rate. Young New Zealanders in particular are leading this charge – technology has become an integral part of their lives, and they have expectations of instant and continuous connectivity wherever they go.

There are few areas the digital transformation of the past decade has not touched. Online activity and the delivery of key services are increasing at an exponential rate in education, government and health sectors, while marketplaces for retail, entertainment and media services are accelerating their shift online. New Zealand businesses are using the internet to develop new products and business models, and to pursue international opportunities, while cloud-based services are revolutionising their operations.

We are faced with a clear challenge today: to help Kiwis take advantage of digital opportunities, we must ensure they have early access to high-quality, competitively priced services based on world-leading technologies.

A number of supply-side initiatives are underway to help meet the expectations of consumers. The Government has invested in the Ultra-Fast Broadband and Rural Broadband initiatives, and will allocate the 700 MHz spectrum for a move to 4G networks to make faster and better quality telecommunications services available to all New Zealanders.

However, we also need to make sure the rules that govern such a fast-moving and innovative industry are future-proofed. This document marks the beginning of a nationwide conversation about the features the regulatory framework needs to have to support the industry and meet the needs of New Zealand consumers.

As part of this process we have identified some issues that need to be addressed as a priority, pending the completion of the review of longer-term regulatory settings. This document therefore proposes some changes to the wholesale access regime in order to support the transition from a legacy technology to a replacement fixed network.

We are being deliberately open-minded about what the regulatory settings might look like post-2020 and I would like to challenge stakeholders to think creatively and to get involved. As we consider alternative models I am particularly keen that we keep the needs of New Zealand consumers and innovators to the forefront of our thinking – and keep questioning how we can deliver a vibrant telecommunications sector that will meet their needs in the decades to come.

A handwritten signature in blue ink, which appears to read 'Amy Adams'. The signature is fluid and cursive, with a large initial 'A'.

Hon. Amy Adams
Minister for Communications and Information Technology



Executive summary

Scope of review

1. The Telecommunications Act provides that the Minister must, not later than 30 September 2016, commence a review of the policy framework for regulating telecommunications services in New Zealand.
2. This document commences the review earlier than anticipated to ensure that our regulatory settings are, and remain, fit for purpose in a period of transition from a legacy copper network to a new fibre network.
3. The potential scope of the complete review is broad, extending to the entire regulatory framework under the Act, taking account of market structure, technology developments and competitive conditions in the telecommunications industry, including the impact of fibre, copper, wireless, and other telecommunications network investment.
4. The following principles will guide the review:
 - promoting competition for the long-term benefit of end-users
 - encouraging efficient investment for the long-term benefit of end-users
 - supporting innovation in telecommunications markets
 - deregulating where sufficient competition exists
 - technology neutrality as a general principle, with any exceptions to this approach clearly articulated, and
 - where policy initiatives support social objectives (e.g. the availability and affordability of basic telephone services), such measures should have the least distortionary effect and be transparent.
5. The Government is also reviewing the Telecommunications Service Obligations (TSO) for local residential telephone services in parallel to this review. The TSO review is designed to test the on-going need for obligations on Telecom and Chorus to ensure available and affordable basic telecommunications services. Undertaking the TSO and regulatory reviews at a similar time allows full consideration to be given to connections between the various issues.
6. It is proposed that a phased approach is taken to the regulatory review given the range of issues involved and the differences in timing and urgency between them. The proposed phases are:
 - the initial phase looks at whether the current regulatory framework is fit-for-purpose for the transition from the legacy copper network to the new fibre network

- future phases will consider the regulatory framework from 2020, when the roll-out of the ultra-fast broadband network will be largely completed and new mobile technologies fully deployed. Issues relating to the content market will also be clearer. The Government is seeking views on the priority and timing of issues to be addressed.

Trends in competition and technology

7. The discussion document describes the current regulatory framework and examines recent trends in the fixed line voice, fixed line broadband, and mobile markets in New Zealand. This highlights positive trends in a number of key areas. Increasing competition in telecommunications markets is stimulating investment in some areas, resulting in greater innovation and product differentiation, and providing greater value for money and choice to end-users.
8. The fixed broadband market has recently been typified by increasing competition and investment in some areas. However, it is clear that investment in new fibre infrastructure is needed to address bandwidth constraints and meet demand for ever-increasing broadband speeds. There is broad industry acceptance that the copper network will not deliver the capability New Zealand needs in the future. The roll-out of fibre through the UFB (Ultra-Fast Broadband) project is widely supported by network investors, RSPs (retail service providers) and consumer groups.
9. While competition has been successful in driving investments in mobile access infrastructure, it has been less successful in incentivising upgrades to the 'last mile' fixed line infrastructure in New Zealand. Where such investment has occurred it has often had to be secured through regulatory commitments (e.g. Telecom's cabinetisation investment) or public contributions to funding (e.g. the UFB investment).

Regulatory framework – what issues need to be addressed in Phase One of the review?

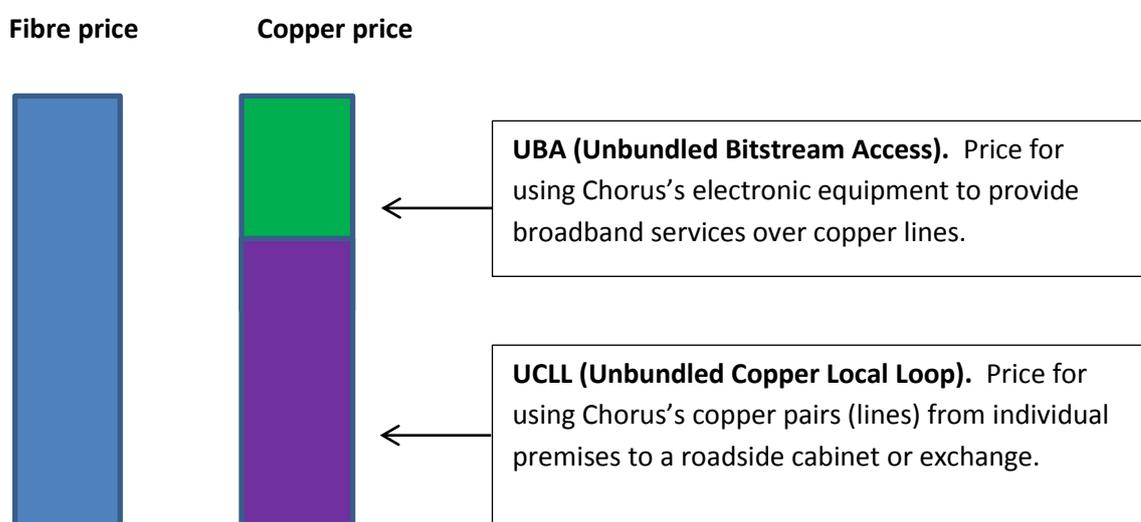
10. The current regulatory framework in the Telecommunications Act is designed to ensure that telecommunications companies providing services to consumers can get access to the underlying network on fair terms and conditions, so they can compete 'on a level playing field'.¹ The overall purpose of this part of the Act is "to promote competition in the telecommunications market for the long-term benefit of end-users".

¹ The underlying fixed network comprises the individual lines that run under roads and on telephone poles from roadside cabinets and telephone exchanges to nearly all homes, businesses, schools, hospitals and other premises. This network, particularly the 'last mile' connection to individual premises, cannot be economically duplicated by competitors. This means competitors must be able to access the network, which was previously owned by Telecom but is now owned by Chorus, in order to provide services to consumers. Mobile telephone networks are also potentially subject to the access regime of the Telecommunications Act, but are not the focus of the initial phase of the review.

11. The challenge for New Zealand is that the underlying fixed line network is undergoing a once-in-a-generation upgrade from traditional copper lines to fibre optic lines.
12. This raises unique issues about how to price access to both the copper network and to the fibre network for competing telecommunications companies as fibre is progressively rolled out and gradually replaces copper.
13. While these transitional issues are new, they are not unique to New Zealand. There is widespread agreement overseas that fibre is the way of the future for fixed line telecommunications networks, and most developed countries are grappling with the issues of how best to replace copper with fibre as quickly as possible and how best to ensure that regulatory policies facilitate the roll-out of fibre and promote competition for the long-term benefit of consumers.

Is the current regulatory framework fit for purpose for the transition from a legacy to a replacement network?

14. The stylised diagram below illustrates the two components of the wholesale price for access to the copper network for telecommunications companies for broadband services compared to the fibre price structure. Telecommunication companies can just pay the UCLL price, and install their own electronic equipment (to avoid paying the UBA), or they can pay both the UCLL and UBA prices for access to both the copper lines and the electronics. For equivalent fibre services, such companies pay a single price for access to both fibre lines and electronics.



15. The relative price of access for telecommunications companies to the copper network, and to the fibre network as it is rolled-out, can have a big impact on whether telecommunications companies choose to use fibre (where it's available) or stay on copper. This in turn affects the availability of new fibre-based services to consumers, the uptake of those services and the economics of the roll-out of fibre.

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16. The access prices for fibre were set (until 2019) as part of the tenders for the UFB. The UFB contracts are with Chorus (for about 70 percent of the UFB build), and with the Local Fibre Companies (LFCs) Northpower (Northland), Enable (in the Christchurch area) and Ultrafast Fibre (in the central North Island).
 17. The access price for copper is set by the Commerce Commission. The Act requires the Commission to use a two-step process to determine the forward-looking cost of a replacement network and set prices for copper UCLL and UBA:
 - Firstly, to set initial prices by benchmarking cost-based prices for similar services in comparable jurisdictions overseas.
 - Secondly, if the initial price is appealed against by any telecommunications company, to set prices on the basis of long-run forward-looking costs, in effect the cost of replacing the network (called TSLRIC²).
 18. The pricing principles (the use of forward looking costs for network replacement) remain sound, and reflect international best practice. However, the implementation processes may not be optimal during the transition period, when replacement of a legacy network by new technology is actually underway. In particular:
 - International benchmarking can be difficult where there are few countries with exactly comparable circumstances to New Zealand.
 - The process of setting prices based on long-run forward-looking costs using cost models can be very time-consuming (usually several years) because complex modelling and extensive consultation are involved. Modelling is particularly difficult during a transition period when one network is gradually and progressively replacing another.
 - Crucially, the costs of a replacement fixed line network in New Zealand are already known, as a result of prices set through the robust tender process for the UFB initiative. The fibre network can be regarded as a suitable replacement network because no-one would now replace the copper network with a new copper network: they would lay fibre.
 19. The issue has become important because the Commission is in the process of resetting prices for both UBA and UCLL. Currently, the price for access to copper is higher than the equivalent fibre price. However, there is uncertainty as to what final prices will be set by the Commission (creating uncertainty for investors) and there is a risk that prices (particularly those based on benchmarking) may be lower, and possibly substantially lower, than the actual cost of a replacement network.³

² Total Service Long Run Incremental Cost.

³ The recent UBA pricing determinations by the Commission would, if confirmed, have the effect of significantly reducing the price of copper services (the combined price of the network and electronics) from

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20. The discussion document comes to the preliminary conclusion that copper access prices (UCLL and UBA combined) should be roughly equivalent to fibre prices set by the UFB tendering process. Prices need to be “right”, or “efficient”: not too low that they discourage investment and innovation by telecommunications companies in modern replacement networks, but no higher than they need to be, so that consumers benefit from falling costs over time.
21. The reasons for favouring rough equivalence in copper and fibre prices are:
- Firstly, it is consistent with existing pricing principles and is theoretically sound. It is widely accepted internationally that the price for access to monopoly or ‘bottleneck’ assets like the underlying telecommunications network should be based on the cost of “modern equivalent assets”. The underpinning theory to this principle is that if a competitive market existed for these services it would deliver prices at these levels. As noted above, the “modern equivalent asset” to the copper network is a fibre network. We know the cost of laying a new fibre network and providing wholesale services because the cost was discovered through the tendering process for the UFB.
 - Secondly, it ensures that there is no financial *disincentive* to provide fibre-based services and for consumers to choose them. This is particularly important during the roll-out phase of a new technology like fibre, where it takes time to complete the roll-out, but telecommunications companies need a good uptake of the new technology in order to justify developing new services and marketing them to consumers. Avoiding a disincentive to the use of fibre:
 - a. ensures that the economic benefits of switching to fibre are achieved sooner rather than later
 - b. minimises the time period when two parallel networks (copper and fibre) need to be operated and maintained, which is inefficient.
 - Thirdly, it is in line with price expectations for access to copper when the contracts were finalised for the UFB roll-out. If copper prices end up substantially lower than fibre prices, this undermines the basis on which the LFCs and Chorus contracted to roll out fibre (because it affects the speed of uptake of fibre, and, in Chorus’s case, also affects the revenue it receives from its copper network), which may create risks for the fibre roll-out.

Setting network access prices during the transition to a replacement network

22. The discussion document identifies a number of options for ensuring that prices to access the Chorus copper network during the transition phase of the UFB build period be set with reference to UFB prices for fibre.

2014 from \$44.98 to \$32.45 per month. The current entry level price for fibre is \$37.50, increasing annually by \$1 between 2015 and 2019 to \$42.50.

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23. It is important to note that none of the options involves fundamental changes to the regulatory regime in the Act during the transition period. The Act's objective would remain to promote competition for the long-term benefit of end-users, and the price of access to the underlying fixed network would remain long-run, forward-looking costs. The only change would be to make it clear that the cost of rolling out the fibre network (as discovered through competitive tendering) provides the most suitable proxy for the cost of a replacement copper network.
 24. The options below involve different ways of delivering on that principle. For all of the options a price point for the total copper price (UCLL + UBA) is selected by reference to the range of low-end UFB fibre prices. These prices start at \$37.50 and increase to \$42.50 by 2019. Having selected a price point in this range the options look at different ways of dividing the total price between the UCLL and UBA prices. In each case, the price-setting mechanism would only be in place during the UFB build period to 2020.

Option 1: the Commerce Commission sets prices by reference to UFB contract prices

25. This option involves three steps:
 - i. The Commerce Commission is required to select a total copper (UCLL+UBA) price point in the range of low end UFB fibre prices (\$37.50- \$42.50).
 - ii. The UBA price would be locked in at the level set through benchmarking by the Commission under the current regime (the current draft price is \$8.93). It is expected that the Commission will finalise its benchmarked price late August/early September 2013.
 - iii. The UCLL price would then be set as being the difference between the total price selected by the Commission (set at step 1) and the UBA price (set at step 2).
26. As the Commission would need to select a total copper price point in step 1, this would require consultation which could take from six months to a year. Accordingly an effective date for any new prices would be approximately November 2015. The new UCLL price would not apply to the wholesale service used to support traditional voice services (the Unbundled Copper Low Frequency service (UCLFS)), if end-users only take voice (and not broadband) services.
27. The reason for accepting the Commission's benchmarked UBA price and resetting only the UCLL price is because the benchmarked UBA price is likely to be relatively reliable compared to the UCLL price. The UBA service costs are predominantly electronic equipment for which a global market exists and accordingly prices are easily observable. Benchmarking to set the UCLL price is inherently more difficult and less reliable as an indicator of the costs involved in an efficient build of a replacement network.
28. The advantages of option one are:
 - It retains the Commerce Commission's role in setting prices.
 - The total price would be clearly set with reference to competitively set replacement network costs.



29. The disadvantages are:

- Legislation will need to be highly prescriptive to provide for certainty of outcomes.
- With step 1 in the process there may be a substantial delay before the price is finally set. As a result this option provides limited advantages over the alternative options in terms of certainty for investors, RSPs and end-users.

Option 2: the Government sets a new UBA price

30. This option has 3 steps:

- i. The Government selects a total copper (UCLL+UBA) price point in the \$37.50-\$42.50 range.
- ii. The UCLL price would be locked in at the level currently set through benchmarking by the Commission (\$23.52).
- iii. The UBA price would then be the difference between the total price set at step 1 and the UCLL price set at step 2.

31. To protect against the potential for inefficient unbundling of cabinets, the sub-loop unbundling service that connects the cabinets with households would no longer be available.

32. The advantages are:

- The price would be set at an early date, providing some certainty (subject to the effects on unbundling, described below).
- The total price would be clearly set with reference to competitively set replacement network costs.

33. The disadvantages are:

- Benchmarking should be a reasonable way of estimating replacement costs for assets like electronics, which are less sensitive to particular local conditions than investments requiring large scale civil works.
- The price for UBA would most likely have to be increased from the benchmarked UBA price to ensure that the total (UBA+UCLL) copper price would be equivalent to entry level fibre prices.
- This creates a risk that the UBA price would be too high relative to the underlying costs of the UBA electronics, which would encourage RSPs to unbundle.
- In these circumstances, unbundling would be inefficient and would undermine investment in a replacement network.

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34. This option is relatively simple to implement. The Government would seek to implement this approach by the original implementation date of November 2014 if this became the preferred option.

Option 3: the Government sets a new UCLL price

35. This option involves three steps:
- i. The Government selects a total copper (UCLL+UBA) price point in the \$37.50-\$42.50 range.
 - ii. The UBA price would be locked in at the level set through benchmarking by the Commission (currently \$8.93 but to be finalised in late August/early September 2013).
 - iii. The UCLL price would then be the difference between the total price set at step 1 and the UBA price set at step 2.
36. The new UCLL price would not apply to the wholesale service used to support traditional voice services (the UCLFS), if end-users only take voice (and not broadband) services.
37. The advantages are:
- The price would be set at an early date, providing certainty for all parties.
 - The total price would be clearly set with reference to competitively set replacement network costs.
 - The margins between UCLL and the total copper (UCLL+UBA) prices would remain the same as those set by the Commission under the current regime, so incentives to unbundle should remain the same.
 - There would be less incentive than option 2 for telecommunications companies to undermine investment in replacement networks by inefficient unbundling.
38. The disadvantage of this option is if the benchmarked UBA price is not accurate, then the price of the UCLL component may be too high or too low.
39. This option is relatively simple to implement. The Government would seek to implement this approach by the original implementation date of November 2014 if this became the preferred option.

Future phases: review of the regulatory framework from 2020

40. Future phases of the review will consider the regulatory framework from 2020, when the roll-out of the ultra-fast fibre network will be largely completed and new mobile technologies deployed. Future phases of the review are expected to be undertaken over a number of years which will allow further developments in the market to be taken into account.

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41. The Government considers that the review could include, in addition to focusing on whether the regulatory regime is fit-for-purpose for the post-2020 market, the following specific issues:
 - the functioning of the content market
 - net neutrality (ensuring that service providers do not discriminate in favour of their own traffic)
 - the availability of adequate national backhaul and interconnection services
 - whether the copper network should be ‘switched-off’ at a certain point and in certain areas
 - whether there should be a merits review of Commerce Commission decisions
 - regulatory consistency with Australia.
 42. More generally the review will test whether there is sufficient competition to allow less regulatory oversight of some elements of the “ladder of investment”.
 43. The review invites comment on whether these issues are relevant, whether there are other issues that also need to be addressed in future phases of the review, and the relative priority of the issues.

Submissions

44. Submissions on this discussion document are invited by 5.00pm, Friday 13 September 2013. Details on the submission process are provided in Annex A.



Introduction

45. The long-term vision for New Zealand telecommunications markets is that consumers benefit from markets that deliver innovative and competitively priced products and have early access to high quality, widely available telecommunications services.
46. Telecommunications services and high speed broadband are now essential business services, improving workplace productivity and transforming the way business is done. High speed services are also an increasingly vital underpinning capability for our health system, research institutions, schools, and at home.
47. It is essential that the significant transformations that are currently taking place in the telecommunications sector are supported by a stable and predictable regulatory framework that promotes competition and facilitates significant new investment in infrastructure.
48. Section 157AA of the Telecommunications Act 2001 (the Act) provides that the Minister must, no later than 30 September 2016, commence a review of the policy framework for regulating telecommunications services in New Zealand. The review is intended to ensure our regulatory settings are, and remain, fit for purpose.

Principles of the regulatory review

49. To achieve the long-term vision for telecommunications markets the following principles will guide the review of the regulatory framework:
 - promoting competition for the long-term benefit of end-users
 - encouraging efficient investment for the long-term benefit of end-users
 - supporting innovation in telecommunications markets
 - deregulating where sufficient competition exists
 - technology neutrality as a general principle, with any exceptions to this approach clearly articulated
 - where policy initiatives support social objectives (e.g. the availability and affordability of basic telephone services), such measures should have the least distortionary effect, and be transparent.
50. Giving effect to these principles should result in a minimal on-going role for central government beyond high level policy oversight, and intervention only where it is justified. These principles are consistent with the objectives in section 157AA of the Act.

Scope of the regulatory review

51. The potential scope of this review is broad, extending to the entire regulatory framework under the Act, taking account of market structure, technology developments and competitive conditions in the telecommunications industry, including the impact of fibre, copper, wireless, and other telecommunications network investment.
52. As required under section 101A of the Act, the Government is also reviewing the Local Residential Telephone Service Telecommunications Service Obligations (TSO) in parallel to this Review. The TSO review is designed to test the on-going need for obligations to guarantee available and affordable services. The review is designed to explore whether any provisions that remain should be technology neutral, ensure that regulation is not a barrier to innovation, and to consider removal of TSO obligations where the objectives of the TSO can be met by the market.
53. Undertaking the regulatory review at the same time as the TSO review allows any related issues to be addressed.
54. Consideration of the Radiocommunications Act 1989 is outside the scope of this review.

Objectives of the regulatory review

55. The review will consider whether the existing regime is the most effective means for achieving the outcomes set out in section 157AA(2)(a) of the Act and will canvass alternative approaches, tools and institutional arrangements. Section 157AA of the Act also outlines a number of factors that must be considered or taken into account as part of the review:

157AA Minister must review regulatory framework

- (1) The Minister must, not later than 30 September 2016, commence a review of the policy framework for regulating telecommunications services in New Zealand, taking account of the market structure and technology developments and competitive conditions in the telecommunications industry at the time of the review, including the impact of fibre, copper, wireless, and other telecommunications network investment.
- (2) The review must—
 - (a) consider whether the existing regulatory framework under the Telecommunications Act 2001 is the most effective means to—
 - (i) promote competition for the long-term benefit of end-users; and
 - (ii) promote the legitimate commercial interests of access providers and access seekers; and
 - (iii) encourage efficient investment for the long-term benefit of end-users, by—
 - (A) providing investors with an expectation of a reasonable return on their investment; and
 - (B) providing sufficient regulatory stability, transparency, and certainty to enable businesses to make long-term investments; and
 - (iv) support innovation in telecommunications markets, or deregulation where sufficient competition exists; and

- 
- (b) Assess whether alternative regulatory frameworks, including (without limitation) generic price control, would be a preferable and more effective means of achieving these outcomes.
- (3) In carrying out the review, the Minister must—
- (a) consult with interested parties, including the Commission, industry participants, consumers, and Māori; and
- (b) take into account—
- (i) the extent of network coverage of services provided on fibre, copper, wireless, and other telecommunications networks; and
 - (ii) the level of investment in fibre, copper, wireless, and other telecommunications networks, and the ability of access providers to recover that investment within a reasonable period; and
 - (iii) the ability of access providers to achieve, within a reasonable period, reasonable rates of return on their investment in telecommunications networks that adequately reflect the risks assumed by those access providers when the relevant investments were made; and
 - (iv) the level of competition in relevant telecommunications markets; and
 - (v) the effects of the regulatory framework under this Act on investment in fibre, copper, wireless, and other telecommunications networks, and on outcomes for end-users; and
 - (vi) the sustainability of the regulatory framework under this Act, given developments in technology and convergence of traditional telecommunications markets; and
 - (vii) the importance of any regulatory intervention being proportionate, having regard to the problems being addressed, the size of the relevant market, and the number and size of the potentially regulated entities; and
 - (viii) developments in wireless solutions and whether they should be part of any telecommunications regulation; and
 - (ix) experience in comparable jurisdictions and economic relations with Australia, weighed against what is appropriate for New Zealand conditions and the make-up and history of New Zealand's telecommunications markets; and
 - (x) any other matters that the Minister considers relevant.
- (4) The Minister must use his or her best endeavours to ensure that the review is completed no later than 31 March 2019.

56. The objectives in section 157AA(2)(a) should generally complement and reinforce each other. For example, competition should promote efficient investment for the long-term benefit of end-users. Where conflicts arise between the objectives, this may be a sign that too much emphasis is being placed on short-term outcomes. The discussion document will therefore refer to the long-term benefits of end-users as a means of resolving such tensions. A high weighting will be also be given to supporting innovation in resolving any tensions between objectives, as some of the most significant benefits to end-users are obtained from investment in new infrastructure which enables new services and applications to be provided.

57. There are a number of mandatory considerations in section 157AA(3) which must be taken into account in the review. Some of these (the extent of network coverage, the level of investment, the level of competition) are matters of fact, and these are covered in the discussion document. Others require a judgement about the characteristics of the framework (sustainability,



proportionality) or its impact (on investment or end-users). These will be considered when analysing particular aspects of the framework (for example, the access regime in Chapters 4 and 5), at the same time that the broad objectives in section 157AA(2) are being considered.

Phasing of the regulatory review

58. The issue that appears to be the most pressing, and which could also have lasting negative effects if no action is taken, is whether the current regulatory framework provides the environment needed to support investments in replacement fixed broadband infrastructure. Given that the current situation could lead to a lengthy period of uncertainty, at a time when significant investments are being made, we propose to address this issue as a matter of priority in the first phase of the regulatory review.
59. Some issues may be better dealt with closer to 2020, when there is a clearer sense of the impact of new networks and technology.
60. Given the range of issues and potential differences in timing and urgency of those issues, it is proposed that a phased approach is taken to this review, with an initial phase focussing on priority issues. The proposed phases are:
 - The initial phase looks at whether the current regulatory framework is fit-for-purpose for the transition from the legacy copper network to the new fibre network
 - Future phases will consider the regulatory framework after 2020, when the roll-out of the ultra-fast broadband network will be largely completed and the next generation mobile technologies deployed. Issues relating to the content market will also be clearer. The Government is seeking views on the priority and timing of issues to be addressed.

Structure of the discussion document

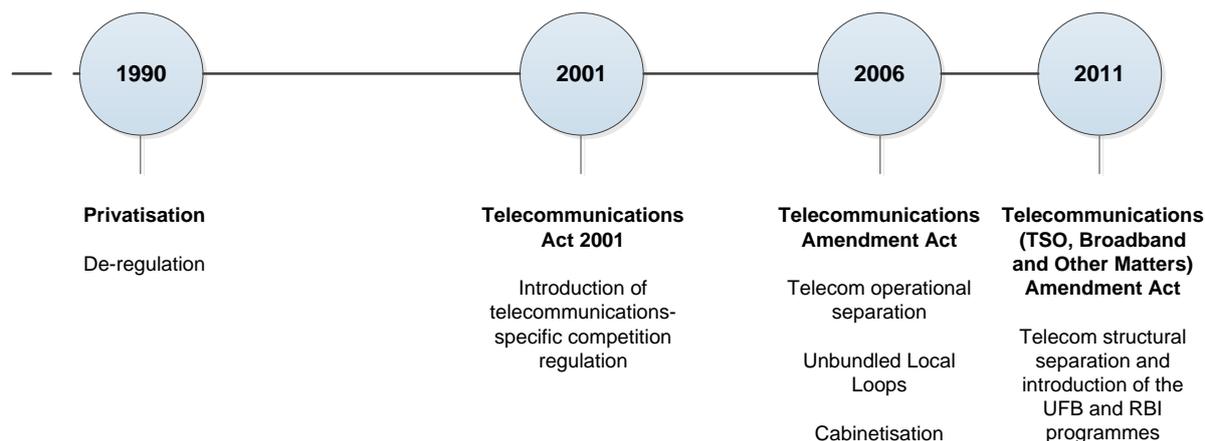
61. This discussion document sets out, and seeks feedback on, the Government's approach for reviewing the policy framework for regulating telecommunications services in New Zealand.
62. The structure of the document is as follows:
 - Chapter 1 provides a brief summary of the current telecommunications regulatory framework.
 - Chapter 2 details recent trends in competition and technology.
 - Chapter 3 explores issues that need to be addressed in relation to the regulatory framework and identifies priority issues.
 - Chapter 4 tests whether the current regulatory framework is fit-for-purpose during the transition to a replacement network.

- 
- Chapter 5 outlines a number of options for amending the way in which copper access services are priced during the transition period.
 - Chapter 6 discusses the issues that could be addressed during future phases of the review.
 - Chapter 7 provides a recap of questions. Consultation questions are also listed throughout the document following the subject matter to which they directly relate.
 - Annex A provides information on the consultation process and how to make a submission.
 - Annex B explains the existing pricing framework.
 - Annex C discusses regulatory experiences in other countries during investment and transition to new replacement fixed networks.

Chapter 1: The telecommunications regulatory framework

63. This chapter provides a summary of the current telecommunications regulatory framework in New Zealand. It describes the evolution of the current regulatory framework and provides a brief overview of the key features of the current framework.

Evolution of the current regulatory framework



64. Telecom New Zealand (Telecom) was privatised in 1990. At the time of privatisation, it was a vertically integrated monopoly that owned the only universal telecommunications infrastructure in New Zealand and delivered the full range of retail services available at the time.

65. At the same time as privatisation, the New Zealand telecommunications market was opened up to competitive entry. New Zealand was unique in the world at this time in its almost exclusive reliance on generic competition regulation (under the Commerce Act 1986) to constrain any anticompetitive behaviour. The only retail price controls were the price cap on the basic line rental service and the requirement to offer free residential local calling.

66. Market entry did take place in the 1990s, but concerns remained about the ability of Telecom to obstruct effective competition. Ultimately this led to the passage of the Telecommunications Act 2001 which brought New Zealand's regulatory regime more into line with international practice. The key features of the Act were:

- an industry-specific regulatory scheme, headed by a specialist Telecommunications Commissioner within the Commerce Commission
- an access regime which allowed the Commerce Commission to set terms of access to an operator's wholesale services if commercial negotiations failed
- a scheme for assessing the cost to Telecom for meeting its universal service obligations and how these costs were recovered across the industry.



67. Major modifications were made to the regulatory framework in 2006 by the Telecommunications Amendment Act, largely as a result of concerns that a continuing lack of competition was holding back investment in and uptake of broadband services. The key changes were:

- The introduction of structural remedies: Telecom was subject to “operational separation”, which required it to set up separate network, wholesale and retail business units subject to rules on how they dealt with each other and with competitors.
- Telecom was obliged to supply regulated products on an “equivalence of inputs” basis, meaning it had to use the same systems and processes to deliver services internally and externally.
- A range of new regulated services were introduced to facilitate progress up the so-called “ladder of investment”⁴, e.g. unbundled local loops.
- The Commerce Commission could proactively set comprehensive terms and conditions for regulated services (both access and price).
- The Commission was given extensive monitoring powers, e.g. the power to seek information on competitive conditions in the telecommunications industry.
- Telecom was required to upgrade its network through a program of “cabinetisation”, which involved replacing part of the copper access network with fibre running to a cabinet closer to end-user premises.

68. Further amendments were made by the Telecommunications (TSO, Broadband, and Other Matters) Amendment Act 2011 in response to Telecom’s decision to participate in the Government’s UFB initiative. These changes enabled the structural separation of Telecom into two separate businesses (Telecom and Chorus). Chorus was also prohibited from participation in providing retail services, and entered into undertakings to provide wholesale services on a non-discriminatory basis.

69. Wholesale prices for fibre services on the Ultrafast Broadband (UFB) network were set through commercial negotiation as part of the competitive process for contracting with UFB partners.

70. Over time, a range of regulatory approaches have been tested in New Zealand. The current regime is characterised by a blend of approaches:

- low formal barriers to entry (no licensing requirements)

⁴ The “ladder of investment” framework takes the form of tiers of regulation that allow access seekers to climb the value chain by initially purchasing cheap inputs with limited scope for differentiating their services, using these to build a customer base, and then using that broader customer base to fund investment in more expensive inputs which allow more opportunities for product differentiation. This approach to regulation is designed to lower barriers to entry by allowing new entrants to make incremental investments in competitive services.

- very limited price control at the retail level
- a comprehensive access regime, with less intrusive remedies for new technology (such as the UFB network, which does not face unbundling of the residential network until 2020)
- structural separation, whereby providers of fixed access copper and fibre networks are not permitted to undertake retailing
- shared regulatory responsibilities between the government, the regulator and the industry itself.

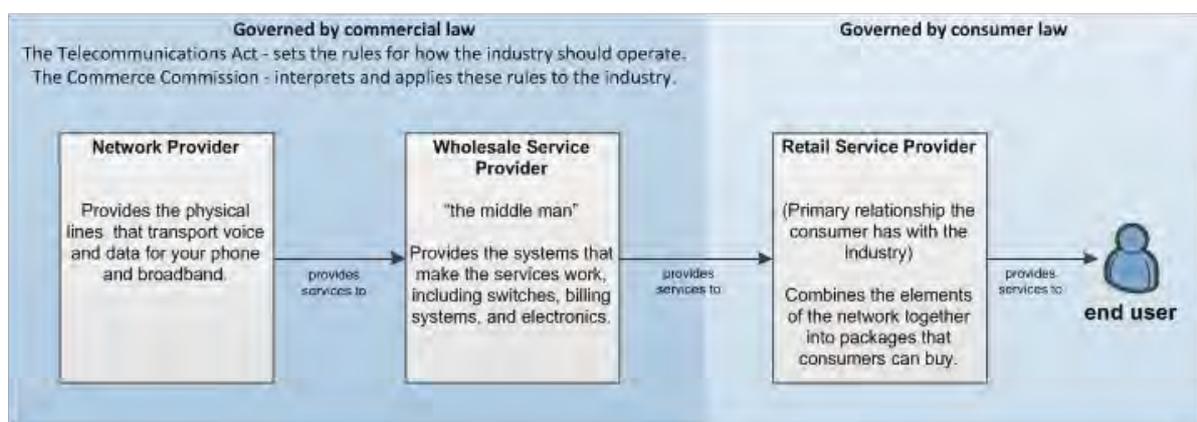
Institutional arrangements

71. **Parliament** sets the framework for regulating telecommunications service through statute.
72. The regulation of the telecommunications industry is overseen by a generic competition regulator, the Commerce Commission, with an embedded **Telecommunications Commissioner** performing industry-specific regulatory functions.
73. The **Courts** can impose fines and penalties for breaches of the Act. The Commission's decisions can be reviewed on the basis of errors of law or process, but not on the basis of the merits of the decision itself.
74. The **Minister for Communications** can also influence some of the Commerce Commission's functions by:
 - requesting that the Commission investigate whether a service should be regulated or deregulated
 - agreeing to or rejecting the Commission's recommendation as to whether to regulate or deregulate a service
 - transmitting a 'statement of economic policy' to the Commerce Commission to which the Commission must "have regard" when performing certain functions.⁵
75. In addition, there is an important role for industry self-regulation. The **New Zealand Telecommunications Forum** (TCF) is an industry organisation that has taken responsibility for developing industry standards, codes of practice, and facilitating dialogue on industry issues of common interest. It also has a statutory role under the Act to develop 'regulated access codes' for regulated services, which, upon approval by the Commission, are binding on all relevant parties.

⁵ While the Commerce Commission must "have regard to" the Government's statements of economic policy, it still must do so in the context of making the decision/recommendation that best gives, or is likely to best give, effect to the purpose of Part 2 of the Act to promote competition for the long-term benefit of end-users.

76. The Number Administration Deed (NAD) is a multilateral industry contract that establishes a numbering mechanism for fixed and mobile phone numbers, which comprises an industry body (the NAD Management Committee) to oversee number administration in New Zealand.
77. **Crown Fibre Holdings (CFH)** is a Crown-owned company that is responsible for managing the Government's investment in UFB infrastructure, including monitoring compliance with the terms of the UFB contracts while the network is being built. It is not a regulator, and does not have a statutory function with respect to the regulation of telecommunications services.

The provision of services in the Telecommunications Industry



The telecommunications industry is also governed by wider-ranging legislation that is not covered under this review, including the Commerce Act, Resource Management Act, and Radiocommunications Act.

Regulatory tools

78. The Act includes a range of regulatory tools, generally exercised by the Commerce Commission. This section outlines the main regulatory tools that are available under the Act.

Regulating or deregulating services

79. The Commission can recommend that services be regulated or deregulated after undertaking a review of competition in the relevant markets, and considering the costs and benefits of regulation. The Minister for Communications can accept or reject the recommendation, or request a clarification.

Setting regulated terms

80. The Commission can set price and non-price terms and conditions for regulated services through Standard Terms Determinations. These are a comprehensive set of terms and conditions which cover the full scope of what would be expected in a commercial contract. Prices are set initially through benchmarking, and ultimately through the development of cost models, if a review is sought by a party to the initial Determination.



Industry-wide remedies

81. The Commission also has the ability to determine that industry-wide services such as number portability should be made available, and to deal with issues that might be barriers to their deployment (such as disputes about how costs should be borne).

Information gathering

82. The Commission has broad powers to monitor competition and markets, and to publicly report on its findings. Local Fibre Companies (LFCs) and Chorus are under specific obligations to provide the Commission with information on the costs and characteristics of the UFB networks. The Commission can also require access providers to prepare and disclose information.

Structural remedies

83. In the current framework, structural remedies have been imposed through legislation (in the case of operational separation), or have been supported by legislation when voluntarily adopted by a company (in the case of the structural separation of Telecom and Chorus).

Enforcement

84. The Commission is responsible for enforcing restrictions (for example, entry into retail service provision by Chorus and LFCs) arising from separation. The Commission also monitors and enforces rules governing the residual interaction between Chorus and Telecom after separation (for example, where assets are shared⁶).

Self-regulation

85. The regulatory framework encourages the industry to develop industry-led solutions where feasible. The TCF also has a critical role in producing codes of practice for regulated services under the Act. Once approved by the Commission they become binding on all parties to whom they relate. An example of such a “regulated code” is the Customer Transfer Code, which sets out practices that telecommunications providers must comply with whenever a customer requests a transfer of their telecommunications services.

Undertakings

86. A formal undertakings process allows the Commerce Commission to accept and enforce voluntary supply commitments from access providers in lieu of regulation. The Commission is also empowered to enforce undertakings made to the Crown in relation to the UFB and RBI roll-outs and structural separation.

⁶ Asset sharing between Chorus and Telecom continues to apply until such time as outlined in the Sharing Arrangements Transition Plan submitted to the Minister and updated on an annual basis.

Other regulatory tools – the Commerce Act 1986

Anti-competitive behaviour

87. Industry-specific regulation under the Act does not preclude the use of remedies under the Commerce Act 1986 to deal with anti-competitive behaviour.
88. The Commerce Commission can address anti-competitive behaviour in the telecommunications sector under the Commerce Act 1986. The Commission successfully obtained a judgement against Telecom New Zealand under section 36 of the Commerce Act 1986, in relation to behaviour that took place after the passage of the Act in 2001.

Price control

89. Part 4 of the Commerce Act 1986 provides for the regulation of markets “where there is little or no competition and little or no likelihood of a substantial increase in competition”.
90. Part 4 allows (or requires if the Minister of Commerce requires) the Commerce Commission to undertake an inquiry into the regulation of particular goods and services. At the end of the inquiry, the Commission must make a recommendation to the Minister of Commerce on whether, in its opinion, the goods or services should be regulated.
91. Part 4:
 - provides for three different types of regulation:
 - information disclosure regulation, under which regulated suppliers are required to disclose information in accordance with requirements determined by the Commission
 - negotiate/arbitrate regulation, under which regulated suppliers are required to negotiate with other parties on prices and quality, and, if negotiation is unsuccessful, to enter into binding arbitration
 - price-quality regulation (that is, price control)
 - requires the Commission to set “input methodologies” which are the methodologies, rules, and processes for undertaking Part 4 inquiries and applying regulation.
92. Regulation under Part 4 is currently applied to electricity lines, gas pipelines and airports, but it can be applied in any market where competition is not possible (that is, to natural monopolies). In theory, it could apply to some telecommunications services.

NZ telecommunications snapshot statistics	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
Total industry metrics							
Total telecommunications retail revenue (\$bn)	4.92	4.9	4.92	4.93	4.96	5.03	5.22
Total telecommunications investment (\$bn)	0.92	1.07	1.18	1.69	1.55	1.24	1.26
Average monthly household telecommunications spend (\$) ^a		126	-	-	145	-	-
Fixed line metrics							
Fixed lines (mil)	1.85	1.85	1.86	1.87	1.88	1.88	1.88
Total fixed broadband connections (mil)	0.48	0.68	0.85	0.98	1.05 ^b	1.14	1.24
Fixed line broadband connections per 100 pop	11.6	16.3	19.8	22.8	24.5	26	28
Residential broadband as % of residential lines	-	-	-	-	65	70	78
Number of unbundled lines (000's)	-	-	3	37	67	98	116
Resold Telecom phone lines (000's)	-	168	262	326	374	414	440
Wholesale broadband lines (not Telecom)(000's)	100	165	251	285	312	362	420
Chargeable fixed voice call minutes (bn)	7.29	6.91	6.71	6.67	6.25	6.12	5.71
Non-chargeable fixed voice call minutes (bn)	-	-	5.31	5.06	4.65	4.45	4.29
Total fixed line retail revenues (\$bn)	2.99	2.93	2.93	2.88	2.89	2.89	2.83
Telecom share of fixed line retail revenues (%)	80	79	78	76	71	65	61
Mobile metrics							
Mobile connections (mil)	3.8	4.25	4.58	4.7	4.7 ^c	4.8	4.9
Active mobile connections per 100 population	92	102	108	109	108	110	111
Share mobile pre-paid (%)	68.2	67.8	67.6	66.1	67.2	65.7	64.9
Mobile voice call minutes (bn)	2.76	3.17	3.66	4.24	4.44	4.40	4.35
SMS messages sent (bn)	-	-	-	11.4	12.8	13.6	13.9
Total mobile retail revenues (\$bn)	1.93	1.97	2.00	2.05	2.07	2.14	2.38

^a Data published every 3 years

^b From this year onwards this measure no longer includes fixed wireless subscribers

^c From this year onwards this is connections active in the last 90 days rather than six months as was previously used



Chapter 2: Trends in competition and technology

Introduction

93. As set out in the Introduction to this review, the Minister is required by s157AA of the Act to consider a range of matters when reviewing the policy framework for regulating telecommunications services in New Zealand. This chapter reviews trends in competition and technology in the telecommunications sector in New Zealand to help provide an information base for the review. It focuses in particular on the following indicators to help assess the regulatory framework:

- market entry leading to greater competition
- end-users have access to a variety of high quality, reliable, and competitively-priced products and services
- end-users have access to new and emerging technologies and uptake of these technologies is occurring in a timely manner
- greater industry investment in new and emerging technologies and the telecommunications sector generally
- prices reduce as technologies mature and competition increases.

94. This section examines recent trends in the fixed line voice, fixed line broadband and mobile markets based on information in the Commerce Commission's Annual Telecommunications Monitoring Report 2012. This provides an indication of progress so far towards achieving the above outcomes.

95. A full copy of the Commerce Commission's report can be accessed at <http://www.comcom.govt.nz/telecommunications-market-reports/>

Fixed line voice

96. Competition for voice services continues to increase:

- the number of end-users switching their home phone services provider is increasing
- the number of retail voice services sold by retailers other than Telecom continues to increase
- the number of fixed voice lines and the number of call minutes over those lines is decreasing because of competition from other technologies.

97. These trends are likely to be driven by the availability of new technologies (especially mobile and voice over internet protocol or VOIP), new voice/broadband bundle offerings, and new entrants in the market.

Fixed voice lines and calling

98. Traditional fixed line voice services continue to be important to New Zealanders. However, the number of fixed line telephone connections has remained static while total fixed called minutes are gradually declining, suggesting increased competition from other technologies.

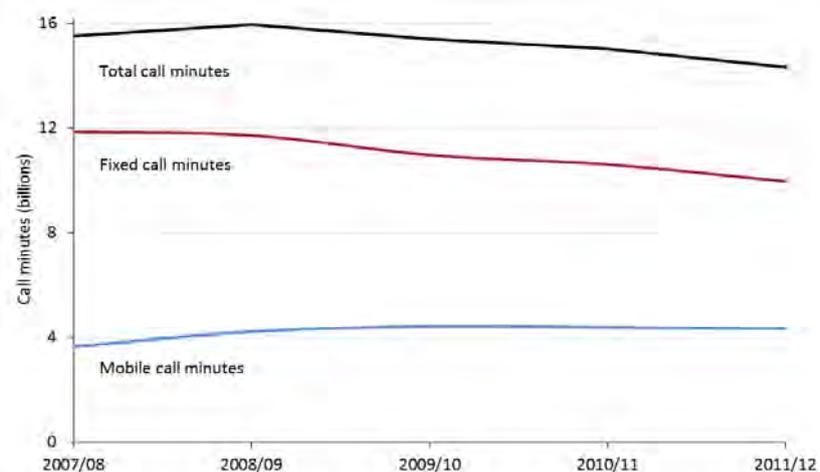


Figure 1: Fixed, Mobile and Total Calling Minutes

Source: Commerce Commission, Annual Telecommunications Monitoring Report 2012

99. This decrease in fixed line calling is likely to be due to a combination of factors:

- End-users are gradually shifting towards more modern technologies, such as mobile and VOIP.
- The increased prevalence of text messaging, social media and over-the-top (OTT) voice/video applications is reducing the need for voice services in general, and also impacting on mobile voice minutes (which stagnated from 2009/10 onwards).
- More providers are offering fixed line broadband without a conventional voice service (naked broadband). The number of these connections has increased twentyfold between 2009/10 and 2011/12 from a low base.

100. Despite this increased competition, there are several reasons why fixed voice line services remain popular in New Zealand:

- Telecom has residential fixed voice obligations (free local calling and a limit on local residential voice service price increases) under the TSO. Residential free local calling accounted for 30 percent of total calling minutes in 2011/12.
- While increasing in popularity and declining in price, mobile services remain relatively expensive compared with fixed line calling.
- There has been slow introduction, and take-up, of other competitive voice services, such as VOIP (which is still in its infancy in New Zealand).

- Most fixed line calling prices are continuing to fall. The continuing fall in the fixed-to-mobile calling price was expected in 2011/12 with the regulated mobile termination rate falling from 5.88 cents per minute to 3.97 cents per minute on 1 April 2012.

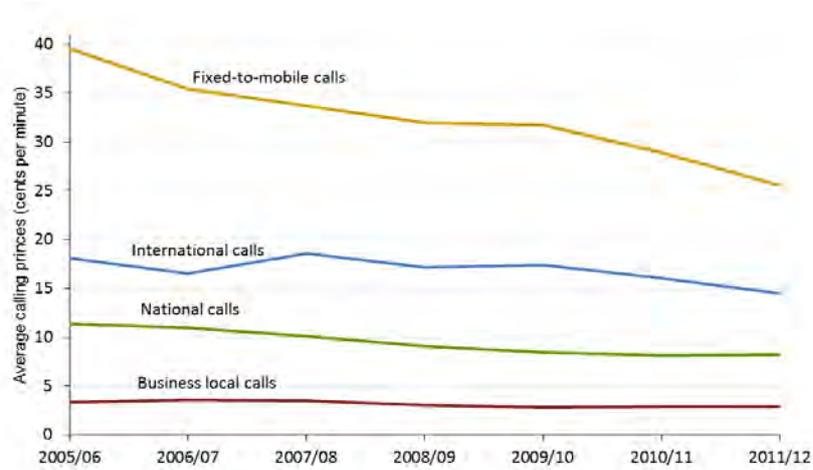


Figure 2: Average Fixed Line Calling Prices by Type
Source: Commerce Commission, Annual Telecommunications Monitoring Report 2012

End-user switching

101. Since 2007, an increasing number of end-users have switched their home phone number between providers, indicating increased competition in the fixed voice market. This trend may reflect a range of factors, including new entrants into the market, increased product differentiation, more competitive pricing, and the ease of switching.

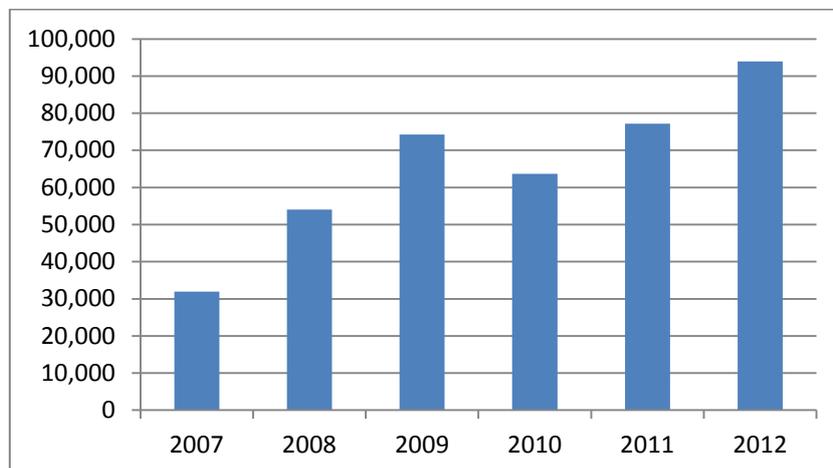


Figure 3: Local Numbers Ported
Source: TCF

102. By international standards, New Zealand has limited competition in the provision of fixed line voice services, with Telecom currently accounting for 62 percent of total access lines⁷. However, competition is increasing, with a growing number of retail voice services sold by other RSPs. This decreasing market concentration is illustrated by the graph below.

⁷ Telecom Annual Report 2012

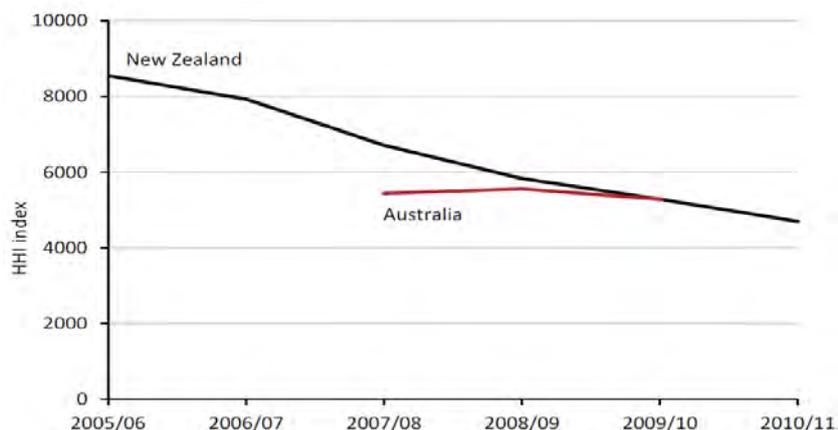


Figure 4: Market concentration in fixed voice retail market (HHI index)⁸.
Source: Commerce Commission, Annual Telecommunications Monitoring Report.

Fixed line broadband

103. Competition in the fixed line broadband market continues to increase:

- The number of fixed broadband connections continues to grow steadily.
- Fixed line data usage increased at a significant rate in 2011/12 (with average monthly data usage increasing from 10 Gigabytes (GB) in the previous year to 19GB).
- Market concentration is declining, indicating increasing competition.

104. Fixed broadband connections continued to grow steadily in New Zealand reaching 1.24 million in 2011/12. This pushed broadband penetration to around 78 percent of households with a fixed line connection.

105. New Zealand's penetration rate for fixed broadband services (per 100 inhabitants) is above the OECD average, with New Zealand currently ranked 16th for broadband uptake, as illustrated by the graph below.

⁸ The Herfindahl-Hirschman Index (HHI) used in this graph (and subsequent graphs) is a commonly accepted measure of market concentration that enables comparisons between countries: a maximum score of 10,000 indicates the presence of one monopoly telecom supplier, while a score of close to zero would represent thousands of firms each with nearly 0% market share.

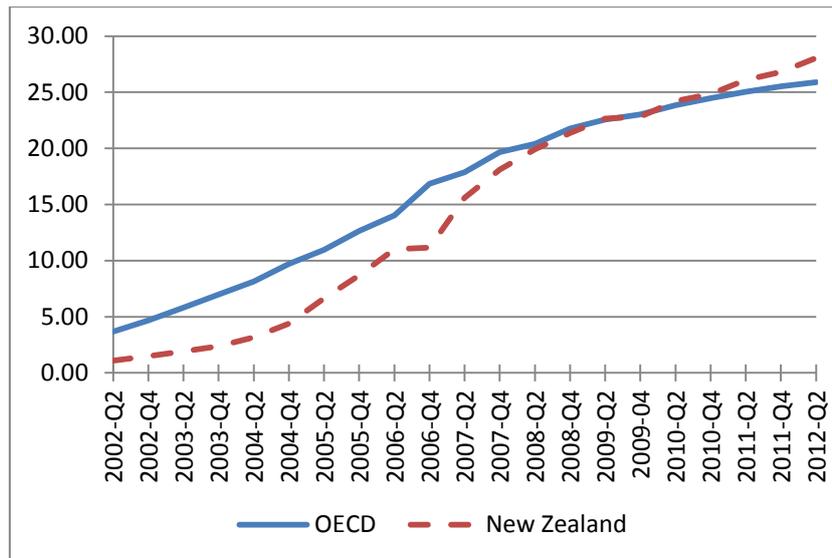


Figure 5: Fixed broadband penetration rate, per 100 inhabitants
Source, OECD

106. There are a number of reasons for this trend:

- End-users are receiving greater value for money as prices fall alongside rising data caps.
- Customers are still upgrading from dial-up to broadband.
- The increasing availability of online content is increasing end-user demand for faster broadband services.
- New Zealanders are early adopters of internet services and historically have had very high penetration rates for internet services.
- RSPs are providing a greater number of broadband services over Chorus's existing infrastructure.

107. As end-user preferences continue to evolve to accommodate more sophisticated and data traffic intensive services (for example, internet video), demand for reliable, high-speed broadband is expected to increase further.

108. The deployment of high-speed fibre connections and the development of high-speed wireless connections are expected to help accommodate this increase in demand and deliver benefits to end-users.

109. The Ultra-fast Broadband initiative (UFB) will make fibre to the premise available to 75% of New Zealanders by the end of 2019. UFB fibre is capable of peak speeds of at least 100 Megabits per second (Mbps). In addition, the Rural Broadband Initiative (RBI) will ensure that 86% of rural homes and businesses can access broadband capable of peak speeds of at least 5Mbps by 2016, and in turn 97.8% of New Zealanders will be able to access broadband capable of peak speeds of at least 5Mbps by the end of 2019.

110. An unusual feature of New Zealand’s broadband market is that most broadband plans are currently limited by data caps. However, the falling price of international bandwidth, combined with competition in the retail market has led to a rapid increase in data caps over the last few years.

111. For example, in 2012 Orcon launched three new Genius broadband plans with higher data caps of 60GB, 200GB and 1000GB, Telecom increased the data caps on all of its home broadband plans by 100 percent or more, and Vodafone increased by 20GB the data caps on two of its home phone and broadband packages and launched a new 200GB naked broadband plan.

112. Despite being one of the least concentrated telecommunications markets in New Zealand, the broadband market is still a concentrated market by international standards, with Telecom retailing approximately 50 percent of retail broadband connections.

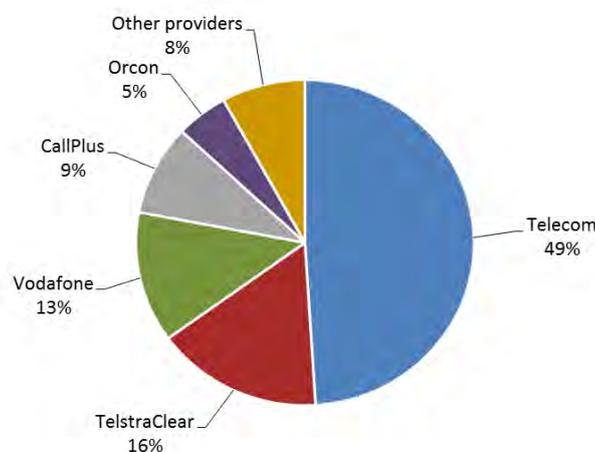


Figure 6: Home Internet Connection Market Share from World Internet Report Survey
Source: Commerce Commission, Annual Telecommunications Monitoring Report 2012

113. However, as illustrated by figure 7 below, broadband retail market concentration in New Zealand has continued to fall over the last three years, indicating increasing competition in the market.

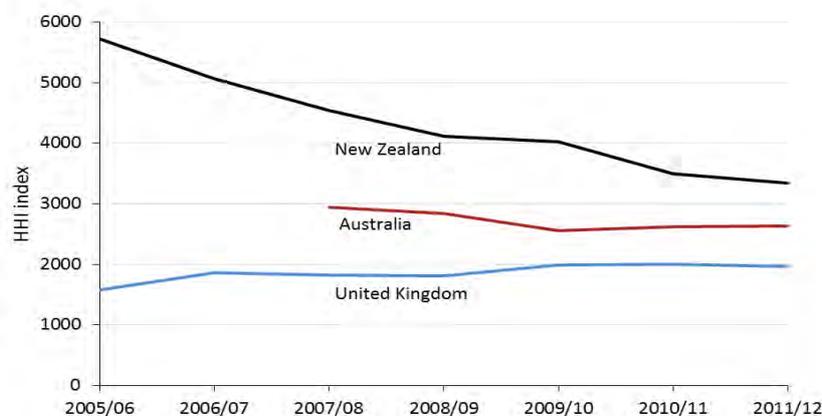


Figure 7: Retail Broadband Market HHI Index
Source: Commerce Commission, Annual Telecommunications Monitoring Report 2012



114. It is common for telephone and broadband services to be sold as a bundle, with the telephony being either traditional (as sold by Telecom) or VOIP (as sold by Orcon, with its Genius product). The base price of this bundle has been falling over the last two years or so – first with Orcon’s Genius offering the voice/broadband bundle for \$70 (later \$75), and latterly with Flip, a prepay voice/broadband bundle (with 5GB of data) for \$49.95 per month.⁹ Unlike Genius, Flip bundles traditional voice service with broadband.

Changing trends - content

115. Access to higher bandwidth will become increasingly important as content delivery shifts to telecommunications platforms – with such valued content potentially being bundled with the telecommunications service or accessed from an OTT service provider.

116. OTT services are delivered by content providers over third party broadband networks to a range of end-user devices. Examples of OTT video companies and services include Quickflix, Apple iTunes, and YouTube.

117. OTT services make it easier for users to access different forms of content online, provide more flexible pricing options to end-users, and offer a competing service to those content services provided as part of a telecommunications package (e.g. triple play offering – voice, data, video).

118. Currently New Zealand consumers have access to a limited number of OTT services. Recent market developments suggest that the range of such services is likely to increase. For example, Coliseum Sport Media Management has bought the rights to show the English Premier League in New Zealand for the next three seasons, and this material will be made available through an online channel. While current technologies may support OTT video content services, new OTT services will become available that require higher bandwidth capacity (for example, to support higher definition video content requirements). It is expected that as UFB penetration increases, so too will the attractiveness of New Zealand to OTT players.

119. To date, New Zealand has seen only minimal integration of content and video services with telecommunications services (with HFC¹⁰ cable networks in Wellington and Christchurch being a notable exception). Fixed network products remain primarily focused on the provision of voice services and broadband access; while premium broadcasting content is delivered by satellite. This feature of New Zealand’s telecommunications markets will change as the availability of faster broadband is likely to stimulate further convergence of content delivery platforms and as RSPs try to differentiate themselves through service quality (e.g. by investing in the caching of content).

⁹ Flip is only available on UCLL.

¹⁰ Hybrid fibre-coaxial



Mobile

120. We have observed a number of positive trends in the mobile arena over the last few years:

- decreasing market concentration
- increased demand for mobile data
- increased investment in, and uptake of, new and emerging technologies
- declining average mobile calling prices
- less on-net, more off-net calling and texting
- declining average retail price for mobile data.

121. The entry of 2degrees into the mobile market in August 2009 (bringing the number of network operators in New Zealand to three with Vodafone and Telecom) resulted in decreasing market concentration in New Zealand.

122. Over the 2011/12 year, the mobile connections of each operator showed signs of converging towards more equal shares. On a connections basis, as at 30 June 2012, Vodafone had a 42 percent share of the market, Telecom 37 percent and 2degrees 20 percent, with MVNOs¹¹ making up the remaining one percent. This convergence trend led to a further fall in retail mobile market concentration.

123. Figure 8 shows that New Zealand's mobile market concentration, measured on a subscriber basis, continues to get closer to that in Australia and the UK. However, subscriber numbers can be a misleading way of showing market share because they do not show how valuable a particular operator's customers are. For example, 2degrees' customers are, on average, less valuable than those of Vodafone and Telecom because they are largely prepay customers.

¹¹ A mobile virtual network operator (MVNO) is a company that provides mobile phone service, but does not have its own licensed frequency allocation of radio spectrum, nor the entire infrastructure required to provide mobile telephone service.

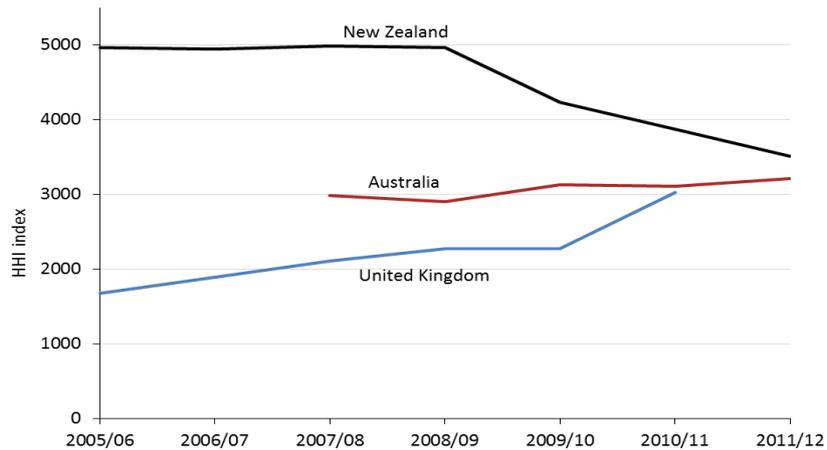


Figure 8: Retail Mobile Market HHI Index
Source: Commerce Commission, Annual Telecommunications Monitoring Report 2012

124. Smartphones, such as the iPhone and Android-based services, have revolutionised the way that people access information, network and communicate. As these devices have allowed easy and convenient access to mobile internet browsers and various connected “apps”, mobile data has become an essential service to an increasing number of consumers.

125. With a dramatic increase in the number of smartphones expected in the near future, we can expect the demand for fast, reliable and affordable mobile data access to increase enormously. A leading industry study found that global mobile data consumption increased 70% in 2012, and forecast a further 13-fold increase between 2012 and 2017.¹² These international figures seem to be consistent with domestic growth of mobile data use, which has experienced an approximately 4-fold increase from 2009/10 to 2011/12.

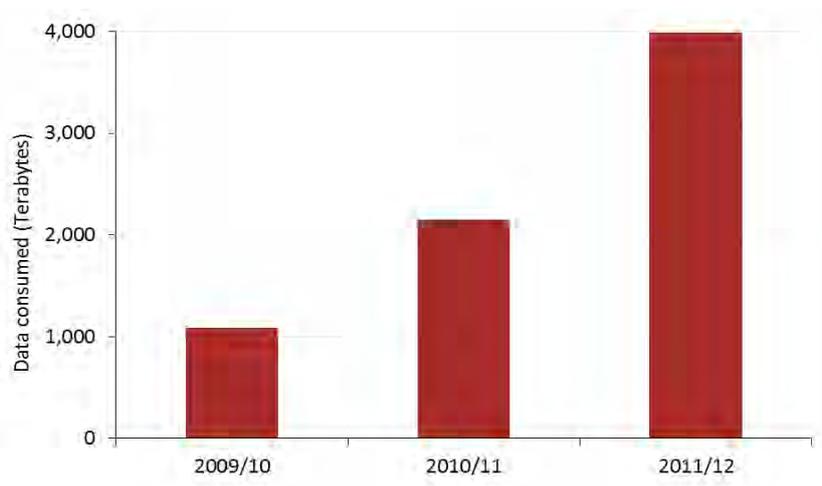


Figure 9: Total Mobile Data Purchased
Source: Commerce Commission, Annual Telecommunications Monitoring Report 2012

¹² Cisco Visual Networking Index: global Mobile Data Traffic Forecast Update 2012-2017

126. The roll-out of Long Term Evolution (LTE) or 4G mobile services throughout New Zealand is designed to cater for the expected high growth in data services¹³. LTE is expected to offer speeds in the order of ten times faster than existing 3G services.
127. Vodafone is providing LTE coverage to parts of Auckland, and plans to extend coverage in Christchurch and Wellington later this year. Telecom has announced its intention to have LTE available on a 'large part' of its Auckland network by October 2013, and in Wellington and Christchurch by Christmas. 2degrees has yet to announce when it will make LTE services available, however, it has previously said that much of its network is '4G ready' and only a software upgrade will be required to make 4G available.
128. An auction of the 700 MHz band is planned for later this year. This will provide additional spectrum for 4G services and will be particularly useful for providing 4G coverage in rural areas.
129. The entry of a third participant has helped to significantly reduce mobile pricing in New Zealand, particularly in the prepay market, which makes up about two thirds of the mobile users in New Zealand.¹⁴
130. Figure 10 shows that average mobile calling prices (apart from on-net) have continued to fall, with particularly steep falls in the price of mobile-to-international and off-net calls.

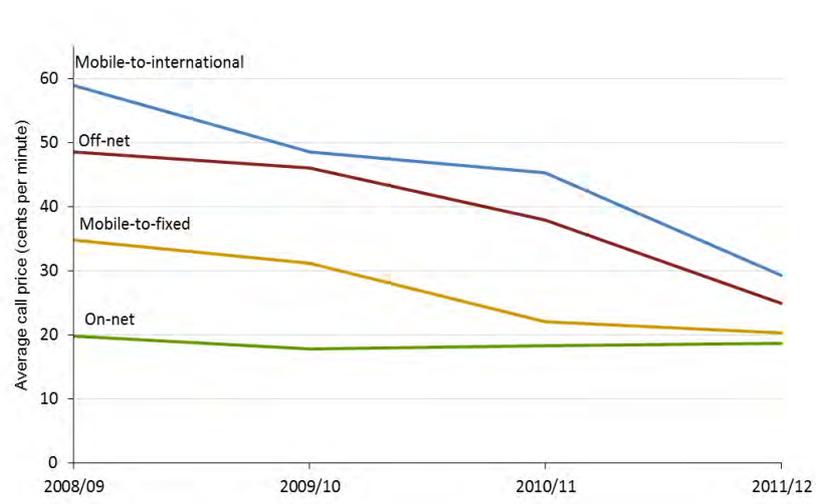


Figure 10: Mobile Call Average Price By Call Type
Source: Commerce Commission, Annual Telecommunications Monitoring Report 2012

131. Despite falling prices, in recent years we have observed decreasing demand for total mobile voice minutes, both domestically and in other Western countries. The smartphone revolution, which is allowing easy access to alternative communication methods, such as email and social networking, and increasing SMS (text) volumes, could explain why mobile users are tending to make fewer calls despite falling prices.

¹³ Initially, at least, LTE networks will not carry voice services (these will be carried by the existing 3G networks).

¹⁴<http://www.tcf.org.nz/content/8cc5ef24-fd65-444a-85d2-6f8c89c3cdf3.html>

132. Mobile operators are continuing to try to encourage more voice use by providing larger buckets of 'free' minutes in competitively priced bundles, resulting in increased choice and value for money for end-users. For example, a new development in the prepay market in 2012 was the introduction of the \$19 monthly prepay bundle by 2degrees, bundling a large amount of texts with a relatively generous amount of minutes and data.

133. Another notable market trend which can be seen from figure 11 is less on-net calling volumes (calling between users on the same network) and more off-net calling (calling between users on different mobile networks). Some of this change will have been a function of mobile market shares becoming more equal and the regulated decrease in mobile termination rates, but it is also likely that there has been less intense use of closed user group calling as some users have migrated to newer plans and changed networks.

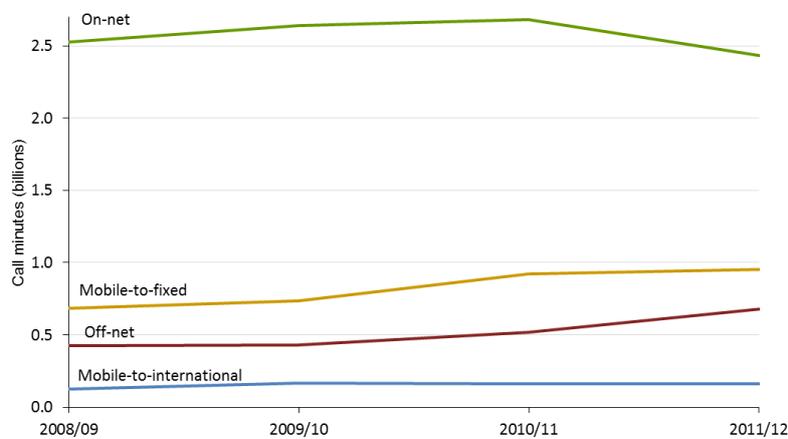


Figure 11: Mobile Call Volumes by Type
Source: Commerce Commission, Annual Telecommunications Monitoring Report 2012

134. As with voice calls, off-net SMS traffic has also been rising and on-net SMS traffic falling. The drivers of this pattern are likely to be similar to those for voice.

135. The average retail price for mobile data has fallen significantly, to 9 cents per megabyte. However, the rate of decrease was not as great in 2011/12 as the previous year.

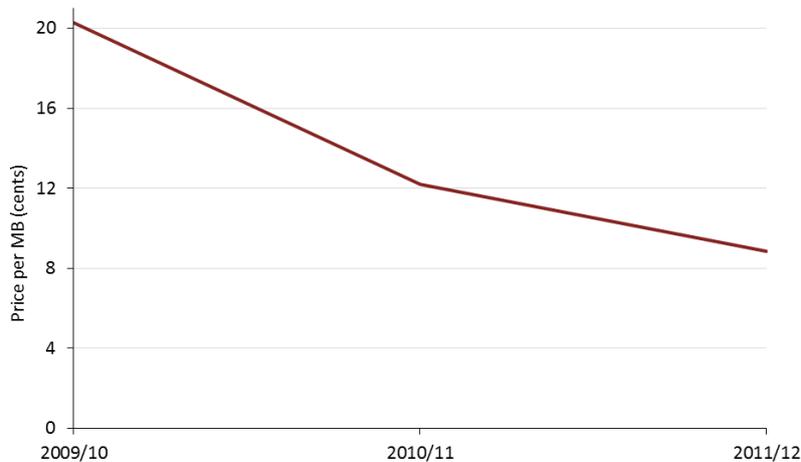


Figure 12: Mobile Average Data Price
Source: Commerce Commission, Annual Telecommunications Monitoring Report 2012

Network coverage

New Zealand network coverage	Current coverage	Expected coverage (2020)
Telephony		
Fixed line telephony	~100% of premises	~100% of premises
Mobile telephony	97% of population	99% of population
Broadband		
Fixed line ≤10Mbps (e.g. DSL)	84% of population	90% of population ¹⁸
Fixed line ≥100Mbps (e.g. UFB, HFC)	10% of population	75% of population
Mobile broadband (3G)	97% of population	98% of population
Mobile broadband (4G)	10% of population ¹⁶	90-98% of population ¹⁹
Rural fixed wireless broadband ¹⁵ (RBI)	6% of population	18% of population
Satellite broadband	~99% of population ¹⁷	~99% of population

Revenue and investment

136. Total retail telecommunications revenues rose in the last two years to reach \$5.22 billion in 2011/12 after several years of minimal growth prior to that. Revenue growth over the periods since 2005/06 fell well behind inflation as users got more for their money.

137. Alongside this, telecommunications investment picked up a little in 2011/12 to \$1.26 billion after peaking at \$1.69 billion in 2008/09. Investment by Chorus and LFCs is increasing as they work to meet the UFB commitments to provide a fibre-to-the-home network in much of the country. There is also significant investment from Chorus, Vodafone and Network Tasman for the RBI.

¹⁵ A number of providers also offer regional fixed wireless broadband coverage, in addition to national fixed wireless broadband coverage.

¹⁶ Vodafone's roll-out of LTE covers 30% of Auckland population.

¹⁷ Satellite broadband has geographic limitations. Therefore, despite national availability, coverage is not 100% of population.

¹⁸ Reflecting Chorus's RBI investment and assuming current network coverage remains through UFB roll-out.

¹⁹ Dependent on which towers are upgraded to 4G capability.

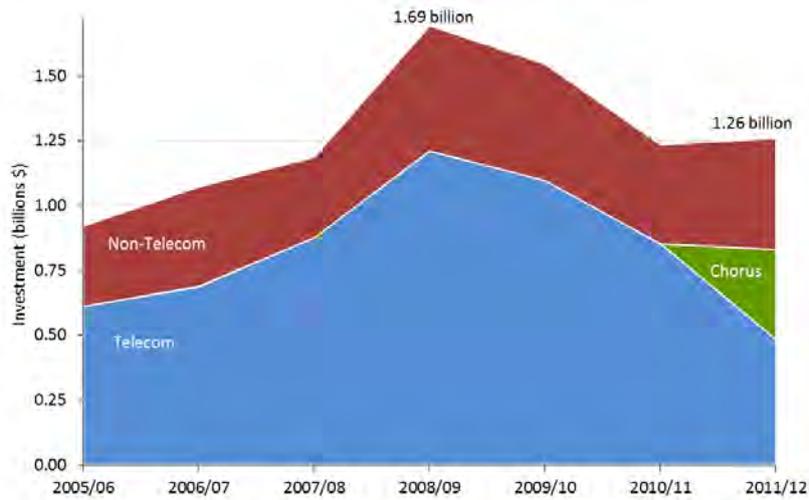


Figure 13: Investment in Telecommunications

Source: Commerce Commission, Annual Telecommunications Monitoring Report 2012

138. Figure 14 shows the various components of total telecommunications investment. Investment in the fixed access network, including new fibre connections, has continued to rise in recent years while “Other and IT investment”, which includes intangible investment in product development and systems, has continued to fall, although it still make up a large portion of the total.

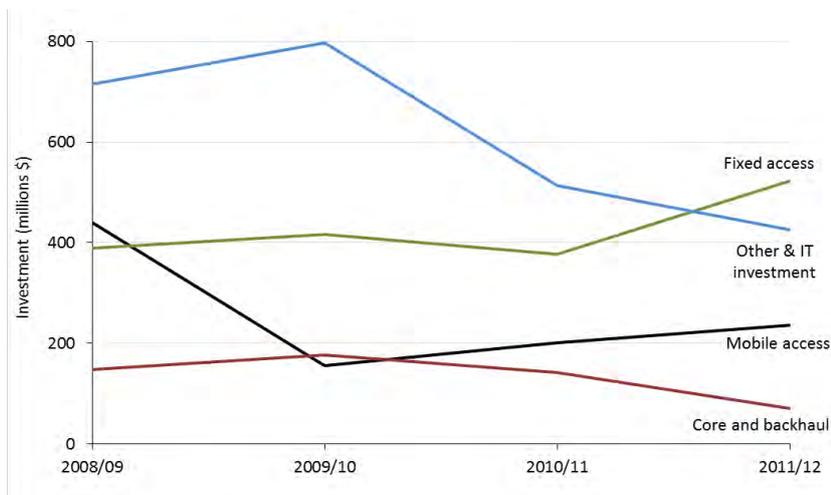


Figure 14: Investment by Component

Source: Commerce Commission, Annual Telecommunications Monitoring Report 2012

Chapter 3: Regulatory framework – what issues need to be addressed?

139. The previous chapter highlighted positive trends in a number of key areas. Increasing competition in telecommunications markets is stimulating investment in some markets, resulting in greater innovation and product differentiation, and providing greater value for money and choice to end-users.
140. Although recent progress has been positive, examining historic trends does not necessarily provide an insight into whether the regulatory framework will be appropriate for dealing with challenges that may arise in the future. This chapter discusses whether markets will meet end-user expectations in the medium term, and identifies issues that may challenge the adequacy of current regulatory settings. Longer-term issues are discussed in Chapter 6 on future phases of the review.

Mobile calling and broadband

141. Mobile markets are likely to continue to be typified by competitive forces, significant levels of investment, and market-driven upgrades from one generation of technology to the next. To the extent that issues arise, existing regulatory settings are likely to be sufficient to meet the long-term needs of consumers.
142. Much of the increasing competition and product innovation is attributable to the entry of 2degrees, supported by a regulatory regime that has applied pressure to bottlenecks such as termination rates and access to infrastructure.
143. Investments in new infrastructure and technology upgrades have occurred relatively seamlessly to date, with the three providers having clear incentives to compete on performance and speed. Competition is likely to continue to drive the investment needed to ensure that data caps and bandwidth constraints do not unduly restrain consumer behaviour.
144. There do not appear to be any major issues in the mobile area that need to be reviewed in the short term.

Traditional fixed voice calling

145. Fixed voice calling volumes are falling in the face of competition from mobile and over-the-top services. The decline in fixed call volumes is likely to accelerate as mobile prices continue to fall and as consumers increasingly shift to VOIP services. The roll-out of UFB will strengthen the business case for delivering VOIP services and will likely result in a steep decline in traditional voice calls, as RSPs find it easier to shift away from reselling a traditional Telecom voice product. In the longer term, traditional fixed voice calling may become a niche service with a diminishing customer base.

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146. The TSO Review is examining whether there remains a need for TSO protections to ensure the continued availability and affordability of basic telecommunications services to groups of end-users to whom those services may not otherwise be supplied on a commercial basis or at an affordable price.
 147. Outside of the TSO issues there do not appear to be any issues that need to be addressed in the short term with traditional voice calling.

Fixed broadband

148. The fixed broadband market has recently been typified by increasing competition and innovation. These trends will be visible to consumers through continued downward pressure on prices, increases in data caps, improved quality and reliability of broadband services, and improved access to content (through for example, caching).
149. However, it is clear that investment in new fixed access infrastructure is necessary to address bandwidth constraints and meet demand for ever-increasing broadband speeds. There is broad industry acceptance that the copper network will not deliver the capability New Zealand needs in the future. The roll-out of fibre through the UFB project is widely supported by network investors, RSPs and consumer groups.
150. While competition has been successful in driving investments in mobile access infrastructure, it has been less successful in incentivising upgrades to the 'last mile' fixed infrastructure in New Zealand. Where such widespread investment has occurred it has often had to be secured through regulatory commitments (e.g. Telecom's cabinetisation investment) or public contributions to funding (e.g. UFB investment).
151. A critical issue facing many jurisdictions is that, in the short-term, legacy copper and replacement fixed networks such as fibre are initially direct substitutes for most consumers. This means that the pricing of copper will directly impact the uptake of, and the business case for investing in, fixed replacement networks.
152. Many regulators and governments are considering how best to set access prices to the existing network during a period of investment and transition to a new, large-scale replacement network (see Annex C for more details). There has been considerable debate internationally on whether and how the pricing of legacy infrastructure should support a transition to new technologies.
153. The next chapter addresses the issue of whether our current regulatory settings are appropriate for a once-in-a-generation upgrade of the fixed broadband network.

Chapter 4: Is the current regulatory framework fit for purpose during a period of significant network replacement?

Upgrading the fixed line network

154. With the roll-out of fibre to the premise, a once-in-a-generation upgrade of the fixed access network is underway. The real benefits to New Zealand come from the applications that take advantage of ultra-fast broadband speeds. An Alcatel-Lucent study gives a sense of the scale of potential benefits for New Zealand consumers from fibre. The study estimated the economic benefits to New Zealand end-users of high speed broadband applications will amount to \$32.8 billion over twenty years.²⁰
155. The nature of replacement infrastructure upgrades is that the investment is lumpy. The lag time between a decision to build and demand for new network services from users can be significant. It is challenging to match incremental build to demand, and it is therefore difficult to match the costs of building the network to revenues from network services. For example, until the network covers a significant proportion of end-users, RSPs will be reluctant to invest in developing products and services which take advantage of the network's capability. However, to reach that level of coverage, the network owner will need to invest a significant amount ahead of receiving any return.
156. Given the scale of capital investment required, and the challenges of matching revenues to costs, planning is needed to ensure that sufficient capacity and capability is built, and available before constraints on the old network begin to have serious negative effects. If the construction of the new network only commences at the point when end-users become frustrated at the limitations of the current network, there will be a long lag before the benefits of new networks are available.
157. Recognising the challenges of investment in the replacement access network, the Government has partnered with private sector fibre providers under the UFB initiative to ensure the investment is made in a timely way²¹. This initiative will bring fibre to the premise for homes, schools, hospitals and businesses, passing 75 percent of New Zealanders by 2020. The investment is being funded from a combination of government funds (\$1.35 billion) and provider funds (at least an equivalent amount).
158. The entry-level price of access to the new fibre network for retail service providers (RSPs) is set in the contracts for the UFB roll-out and applies until 2019. The price is \$37.50, increasing by \$1 a year from 2015 to 2019 to \$42.50.

²⁰ Building the Benefits of Broadband, Alcatel Lucent, 2012

²¹ The partners are Chorus, Northpower, Enable and Ultrafast Fibre

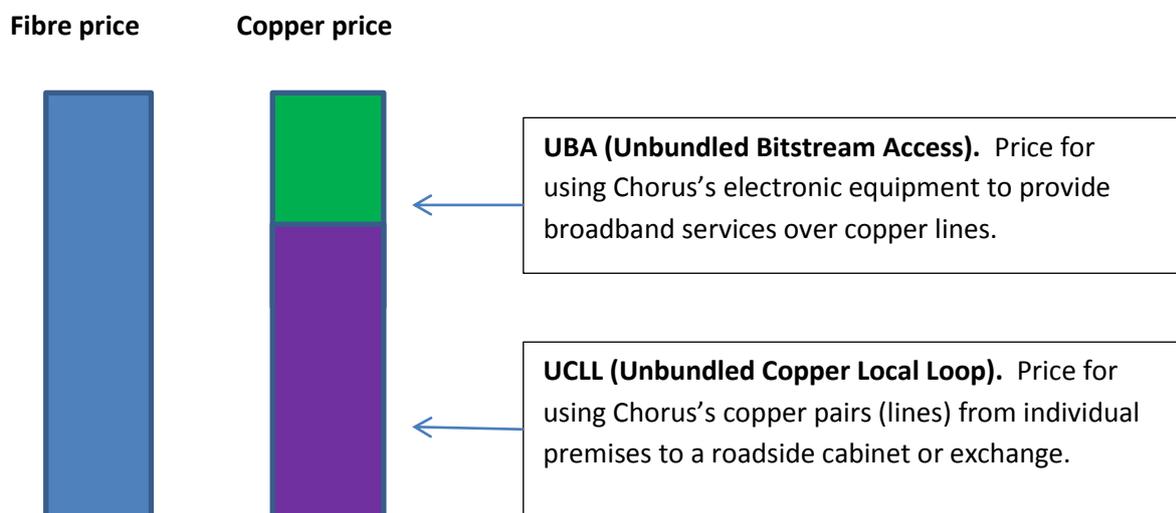
159. The investment in fibre is an order of magnitude larger than other recent telecommunications investments. The investment is being undertaken by entities that do not have retail arms to cross-subsidise wholesale operations, and the investors are subject to contractual obligations that give rise to significant liabilities if build commitments are missed.
160. Allowing sufficient revenue from legacy services to fund investment in new, higher speed replacement networks will benefit consumers.

Current regulatory framework for access to copper

161. Prices for copper services are regulated under the Act for the purpose of promoting competition for the long-term benefit of end-users. The regulatory model in New Zealand is characterised by:

- Access based competition: open access is provided to bottleneck facilities such as the copper network at the wholesale level, so that competition with the network owner will be enabled for the long-term benefit of end-users.
- Promotion of infrastructure competition through:
 - the “ladder of investment” - access seekers are provided with different levels of access to an incumbent operator’s services (the “rungs” of the “ladder of investment”). This ranges from resale, to wholesale access, to network access, providing the opportunity and incentive to build scale and customer numbers at lower levels of the ladder before moving on to the next layer of investment
 - use of forward looking cost-based prices, based on the cost of “modern equivalent assets” – the cost of replacing the current asset.

162. The stylised diagram below illustrates the two components of the wholesale price for access to the copper network for telecommunications companies for broadband services compared to the fibre price structure. Telecommunication companies can just pay the UCLL price, and install their own electronic equipment (to avoid paying the UBA), or they can pay both the UCLL and UBA prices for access to both the copper lines and the electronics. For equivalent fibre services, such companies pay a single price for access to both fibre lines and electronics.



Price setting

163. The method that the Commission must apply for setting prices for each regulated service is set out in the Act. A forward-looking cost-based approach is already in use for UCLL. In 2014 the UBA price will shift to a forward-looking cost-based price (although the Government has signalled it will push the implementation date out by another year to 2015).
164. The standard regulatory approach to setting forward-looking cost-based prices for access to networks is to base these prices on the cost of an efficient modern replacement network. The economic rationale for this approach is that these are the prices that would prevail in a competitive market. This should support the replacement of infrastructure with more efficient new technology.
165. This is designed to allow an efficient new entrant (who would most likely use the most recent technology) to enter the market. While setting access prices based solely on the actual legacy costs of the network owner could lead to lower prices for access seekers and (eventually) for consumers, this approach is recognised as having poor incentives for investment. It could deter network owners from upgrading and new entrants from deploying new access networks.
166. In applying the pricing methodology, the Act provides for a two-stage process:
- Firstly, the initial pricing principle involves establishing a price by benchmarking cost-based prices for similar services in comparable jurisdictions. The initial pricing principle seeks to establish a proxy for a forward-looking cost based price. Typically, the price setting process does not go beyond this point.
 - Secondly, in the event that the Commission is requested to undertake a pricing review of the price it has set through benchmarking, a final pricing principle will be applied – that is, the Commission will apply the designated pricing methodology (e.g. TSLRIC) itself. This involves a more detailed examination of the likely forward-looking costs of supplying the access, usually through developing a cost model.

Recent pricing decisions

167. The current prices for access to copper are above the price for access to fibre. However, recent draft decisions by the Commission, based on the pricing principles indicated above, significantly lower the price of access to copper. This is illustrated in the box below.

Regulated copper service prices

The diagram below illustrates wholesale prices for the copper regulated services and the comparable fibre service.

There are two regulated services that comprise the broadband service:

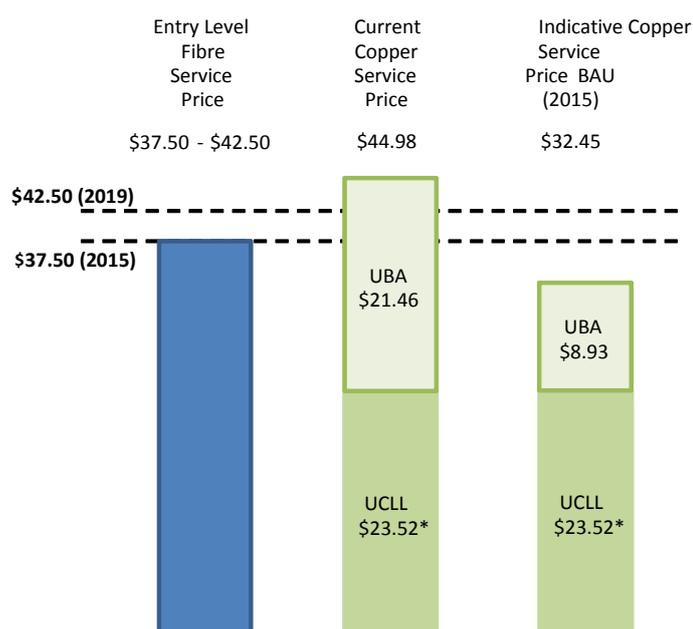
The Unbundled Copper Local Loop (UCLL) service allows access seekers to install their own electronic equipment in Chorus' facilities and deliver voice and broadband services to customers using Chorus' copper network. By mid-2012 there were 116,000 UCLL lines.

The UBA service allows access seekers to supply broadband services over Chorus' copper network without investing in their own equipment (instead relying on Chorus' electronic equipment). As at the end of 2012 there were about one million UBA lines.

The UBA price is the increment to provide this service in addition to accessing the local loop.

Further detail on UBA and UCLL prices and how they apply to different service bundles is set out in Annex B.

The fibre price is drawn from entry level fibre prices set out in the UFB contracts.



*The UCLL price set by the Commission through benchmarking (\$23.52) is currently under review

168. This pricing outcome was not expected at the time the Telecommunications (TSO, Broadband and Other Matters) Amendment Act 2011 was passed. Broadly speaking, the expected outcome from the 2011 policy changes was as follows:

- Fibre and copper prices would be set at broadly comparable levels because it was expected that new section 18(2A)²² of the Act would be a clear signpost for the Commission to set copper prices in a way that facilitated investment in the replacement of the copper network over time.
- These prices would be set quickly, giving early and enduring certainty over the UFB build period for network investors, RSPs and customers. The expected timings were that the Commission would average existing UCLL prices by late 2011 and then complete the UBA price by the end of 2012.
- Migration from copper to fibre would be customer-driven – that is customers would migrate from copper to fibre over time on the basis of the value they perceived in fibre-based offerings.

169. The implementation of the 2011 reforms has not delivered on the policy intent. In particular:

- Prices for regulated copper services have, at least at the benchmarking stage of the process, been set at prices well below UFB fibre prices. In particular, the Commission has found that the Act, notwithstanding section 18(2A), does not allow it to set benchmarked prices on the basis of relativities between copper and fibre prices.
- The process is taking longer than anticipated. As well as averaging UCLL prices the Commission elected to also reset underlying UCLL prices. The subsequent UCLL prices based on benchmarking are now being reviewed. This review could take several years to complete meaning certainty over copper prices is unlikely to be achieved until mid-2015 (it has taken more than two years to complete the benchmarking stage). If the UBA prices set using initial pricing principles are appealed, then this timeframe for finalising copper prices could extend into 2016. This means an extended period of detailed cost modelling with considerable uncertainty over the outcome and timing (modelling is particularly difficult during a transition period when one network is gradually replacing another). This will divert industry focus and resources into regulatory hearings and away from competing and innovating.
- Uncertainty is impacting the industry's plans for fibre migration. Network investors are looking for certainty over cash flows to fund the considerable investments being made in fibre networks. RSPs need certainty over the relativities between copper and fibre to plan their own investment in new services and investment in copper-based services. The net effect is that there is not a stable environment for a customer driven migration from copper to fibre.

170. As noted, the Commission's UBA decision is draft and is therefore subject to change. However, even if the final benchmarked UBA price is higher than the draft price (leading to a

²² Section 18(2A) - To avoid doubt, in determining whether or not, or the extent to which, competition in telecommunications markets for the long-term benefit of end-users of telecommunications services within New Zealand is promoted, consideration must be given to the incentives to innovate that exist for, and the risks faced by, investors in new telecommunications services that involve significant capital investment and that offer capabilities not available from established services.



copper price above \$32.45) the total copper price may remain below, possibly substantially below, the price of access to fibre. Moreover, there will be several years of uncertainty until final prices are known, depending on whether the UBA price is appealed, and pending the outcome of the Commission's on-going review of the UCLL price. Finally, the UCLL price may still be set at a level that is inappropriate, if the total copper price (UCLL+UBA) is still set well below the lowest prices that have been set through a competitive tender process for building a replacement network.

Consequences of the pricing gap

171. The relative price of access for telecommunications companies to the copper network, and to the fibre network as it is rolled out, has a big impact on whether telecommunications companies choose to use fibre (where it is available) or stay on copper. This in turn affects the availability of new fibre-based services to consumers, the uptake of those services and the economics of the roll-out of fibre.
172. More specifically, the risks of a large gap between legacy and replacement network access prices are:
- Fibre revenues for LFCs will be lower than expected (because of the slower uptake of fibre and fibre-based services) affecting expected returns and putting at risk the long-term viability of the firms.²³
 - The development of new services and innovative applications could be deferred, as RSPs remain on the legacy network. The lack of such services and applications will then provide a further disincentive to migrate.
 - As users and RSPs may have reduced incentives to migrate to fibre because of lower copper prices, the period of time where two access networks are operating will be prolonged, resulting in inefficient duplication of network infrastructure.
 - As the owner of the copper network, Chorus will be directly affected by both lower copper revenue and slower migration to fibre which will affect its ability to fund the roll-out of fibre in the areas where it is contracted to do so.

Consequences of uncertainty

173. As noted, it could be several years before the final prices for access to copper are finalised and certain, depending on whether UBA prices are appealed and pending the outcome of the Commission's current review of UCLL prices. This will result in on-going uncertainty for the industry, investors and consumers at a time when we need to be making best use of new fast broadband technologies. Processes for price setting work well under normal circumstances, but they are less satisfactory during a period of major technological change and when local

²³ The expected return on fibre investment affects the capital that can be leveraged by providers against fibre network assets, and therefore the ability of providers to fund their contribution to the roll-out of the fibre network. Over time, the returns themselves also influence the ability of these companies to further invest in advanced technologies.



cost-based information is available (as a result of the competitive tendering process for the UFB build).

174. In the Government's view, it is critical that over the build period, regulatory settings provide early certainty for network investors to invest with confidence and to enable RSPs to plan and invest in the services that will drive uptake in new technologies.

Proposed approach

175. In order to achieve greater pricing certainty at an early date, and ensure efficient pricing, it is proposed that the existing and long standing principle of access prices based on efficient replacement costs using "modern equivalent assets" be implemented in the following way in respect of copper prices where an actual replacement fibre network is being deployed:

- that the replacement costs should be based on fibre, the technology that would clearly now be used if the existing fixed copper network was being replaced
- that the costs of a fibre roll-out in New Zealand be estimated by reference to entry-level UFB fibre prices. These prices were set through the competitive process used to select UFB partners. This provides a market-based means of estimating the actual costs in New Zealand, and ensuring that prices are set at a level that reflects efficient costs.

176. It is therefore proposed that, during the UFB build period, prices for access to the Chorus fixed copper network should be set with reference to UFB prices for fibre.

177. This is consistent with the EU approach outlined in Annex C, where the fibre network is identified as the obvious reference point for replacement costs for copper. In New Zealand, we have the clear advantage that we have a range of fibre costs discovered through a competitive process that can be used as a reference points for an efficient fibre cost. While there are a range of fibre prices, the entry level residential prices will be least likely to lead to over-recovery of costs by the legacy network owner.

178. Accordingly, the Government's preliminary view, subject to consideration of submissions, is that:

- Wholesale copper prices should be set with reference to entry level UFB fibre prices²⁴, as the best available proxy for prices set in a competitive market.
- Copper prices should be set rapidly, in order to provide certainty for the industry, investors and consumers.

179. This approach may mean that RSPs and (depending on the level of pass-through) end-users face higher copper prices in the short term than would be the case if the proposed regulated copper prices were implemented. However, prices would still be lower than those currently being charged. In the longer term there are benefits for end-users arising from efficient

²⁴ This is the 30 Mbps download/10 Mbps upload service.



network replacement as a result of the proposed approach that would offset any short-term price impacts.

180. The proposed approach would be consistent with the promotion of competition. All RSPs face the same total (UCLL+UBA) copper price from Chorus (and copper services are subject to non-discrimination obligations), so changing that price should not in itself affect the level playing field. Changing the UCLL price should not have a significant impact on competition if the relativities set by the Commission between the UCLL and total (UCLL+UBA) copper service prices remain the same.
181. It is sometimes argued that it is necessary to keep technology-specific prices to encourage infrastructure competition between copper and fibre. It is important that regulated copper prices provide the right price signals so that competitors can make choices about whether to buy access, or to build competing infrastructure. The use of a “modern equivalent asset” cost as a benchmark for access pricing is designed to achieve this outcome. However, beyond this, it is not necessary to rely on regulated access pricing to promote competition between copper and other technologies.
182. In Chorus UFB areas, fibre is a replacement technology rather than a competing infrastructure. Trying to promote competition between commonly-owned copper and fibre in these areas may simply undermine the roll-out of the replacement fibre network (by reducing the revenue available for investment). While separately owned copper and fibre networks do compete in non-Chorus UFB areas, there are strong incentives for infrastructure competition in that environment regardless of regulatory settings. Chorus can set wholesale prices below the regulated price cap to match competition from fibre in those areas, if necessary to compete effectively with the LFCs. The same is true generally of competition between copper and other technologies (such as 4G, cable and other wireless technologies).
183. Finally, it is not necessary to rely on regulated copper prices as an indirect constraint on commercially negotiated fibre prices. The fibre prices were set through an efficient competitive process, and are in any case largely subject to the same regulatory constraints as other telecommunications services.²⁵
184. The next chapter considers options for implementing this pricing proposal. It is important to note here that none of the options in the next chapter involve fundamental changes to the regulatory regime in the Act during the transition period while the fibre network is being built. During this period, the Act’s objective would remain to promote competition for the long-term benefit of end-users, and the price of access to the underlying fixed network would remain forward-looking cost-based prices. The only change would be to provide that the cost of rolling out the fibre network would be the proxy for the cost of a replacement copper network. The options in the next chapter involve different ways of delivering on that principle.

²⁵ The only exception is that point-to-multipoint fibre cannot be unbundled before 2020.

Questions:

1. Do you think the current regulatory framework provides the right incentives to support investment in the replacement of the fixed access network?
 2. Do you agree that entry level UFB prices set through a competitive tender process are a reasonable proxy for replacement network costs when setting prices for copper?
-

Are there other barriers to efficient migration from copper to fibre?

185. Although many end-users within UFB-build areas are expected to migrate to UFB over time, some end-users will continue to utilise copper-based services (for example, because fibre is unavailable).
186. Chorus is particularly affected by the regulatory framework for access to fixed line networks, because it is the owner of the existing copper network and is the major contractor for the UFB roll-out. Although Chorus and LFCs are under contractual obligations to roll out UFB infrastructure, Chorus is also subject to regulatory obligations to maintain its copper access infrastructure. Currently under Section 30S of the Act and the UCLL Determination, Chorus cannot refuse to supply copper access services to access seekers. RSPs will be able to continue to use copper-based services even if UFB fibre has been deployed ubiquitously in an area, and even if access to that fibre is available on reasonable terms.
187. The obligation to supply copper services was imposed through the 2006 Amendment Act, where the focus was on ensuring that unbundled copper local loops were available to competitors and that Telecom did not have incentives to discriminate against them – matters that are less relevant now given the structural separation of Telecom.
188. Chorus also has obligations to provide infrastructure to support Telecom's TSO services which can currently only be satisfied through continued deployment of its copper network. The extent to which this should be required is explored in the current TSO review.
189. The combined effect of Chorus' UFB contract and the provisions in the Act require Chorus to invest in the maintenance of two parallel access networks, which is inefficient, and may impose unnecessary costs on Chorus, consumers, and the economy overall.
190. This suggests that where wholesale customers have access to services on the fibre network on reasonable terms (as will be the case with the UFB network), it may not be necessary to require Chorus to continue to offer regulated access on the legacy network.
191. Any withdrawal of access to copper could be subject to a number of provisions to protect access seekers and end-users (for example, notice periods), and ensuring end-users whose copper is removed are offered a service that leaves them at least as well off in terms of cost and service availability.
192. Chorus would only be likely to decommission copper in regions where it won the contract to build UFB – in other UFB areas it is likely to retain its copper to compete with LFCs.



Questions:

3. As migration from copper to fibre occurs, are there any transitional issues (such as access to services traditionally delivered over copper) that you wish to see addressed?
 4. Should Chorus be required to maintain/supply both copper and fibre access infrastructure, if:
 - a. TSO services can be provided on fibre; and
 - b. access to the fibre network is available on reasonable terms?
 5. If not, what safeguards are necessary for access seekers and end-users to ensure an efficient transition?
 6. Are there any other copper to fibre migration options that the Government should consider?
-



Chapter 5: Setting network access prices during the transition

193. Chapter 4 proposed that access prices for copper be set by reference to fibre prices during a transition period while the fibre network is being built.

194. There are three broad options for achieving this outcome:

- The Commission resets the UCLL price in reference to fibre costs (Option 1).
- The Government (rather than the Commission) sets a benchmark price for copper services with reference to fibre costs and either:
 - a. gives it effect through resetting the UBA only (Option 2)
 - b. gives it effect through resetting the UCLL only (Option 3).

195. For each of these options, the advantages and disadvantages and questions for feedback are set out below. All of these options would apply only during the UFB contract period until the end of 2019. That is, they are temporary interventions.

196. It should be noted that in the following sections, for illustrative purposes, the numbers used reflect the Commission's draft UBA prices based on initial pricing principles (i.e. benchmarking). The Commission's final benchmark UBA price may be different from this. However, the points in the discussion are independent of specific prices, particularly given that:

- the relativity between UBA and UCLL prices are an important consideration with regard to incentives to invest in and use fibre
- there is a risk of a lengthy period of price uncertainty, because a review of the UBA price may be sought (requiring the price to be set using the final pricing principles), and the UCLL price is already in the process of review.

Option 1: the Commerce Commission sets prices by reference to UFB contract prices

197. Under this option, the Commerce Commission would, through legislation, be required to reset the UCLL price, but with reference to the cost of fibre. That is, fibre costs would be used as the reference point for the forward-looking cost of copper services, and entry-level UFB prices would be used as market-based proxies for the cost of fibre.

198. This option involves three steps:

- i. Require the Commerce Commission to select a total copper (UCLL+UBA) price point in the range of low end UFB fibre prices (\$37.50- \$42.50).

- 
- ii. The UBA price would be locked in at the level set through benchmarking by the Commission under the current regime (the current draft price is \$8.93). It is expected that the Commission will finalise its benchmarked price late August/early September 2013.
 - iii. The UCLL price would then be set as being the difference between the total price selected by the Commission (set at step 1) and the UBA price (set at step 2).

199. As the Commission would need to select a price point in step 1, this would require consultation which could take anywhere from six months to a year. Accordingly an effective date for any new prices would be approximately November 2015.

200. The reason for accepting the Commission's benchmarked UBA price and resetting only the UCLL price is because the benchmarked UBA price is likely to be relatively reliable compared to the UCLL price. The UBA service costs are predominantly electronic equipment for which a global market exists and accordingly prices are easily observable. For example the cost of installing Alcatel-Lucent or Ericsson equipment in New Zealand is unlikely to substantially differ from other countries. The costs of the UCLL service, on the other hand, are predominantly made up of civil work costs such as trenching and are influenced significantly by country specific factors such as population density, labour costs, terrain, consent and other permitting processes, and housing type (e.g. the dominance of standalone residencies). Benchmarking to set the UCLL price is inherently more difficult and less reliable as an indicator of the costs involved in the efficient build of a replacement network.

201. The advantages of option one are:

- It retains the Commerce Commission's role in setting prices.
- The total price would be clearly set with reference to competitively set replacement network costs.

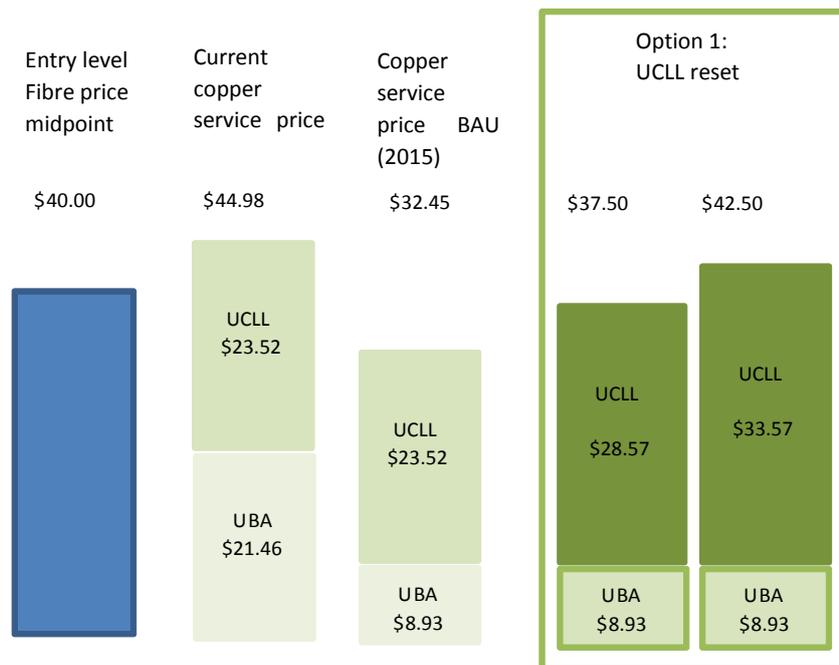
202. The disadvantages are:

- Legislation will need to be highly prescriptive to provide for certainty of outcomes.
- With step 1 in the process there may nonetheless be a substantial delay before the price is finally set. The Commission would need to discontinue any current price setting processes for UCLL²⁶ or for UBA after the completion of benchmarking, and recommence a new price setting process. As a result this option provides limited advantages over the alternative options in terms of certainty for investors, RSPs and end-users.

203. Increasing the UCLL price could affect different access seekers in different ways, depending on their mix of wholesale products. If the total copper price (UCLL + UBA) set by the Commission under this option is lower than current prices, access seekers with a high mix of UBA relative to UCLL would see wholesale prices decreases. However, access seekers with a high mix of UCLL lines relative to UBA could see net price increases.

²⁶ There is currently a final pricing principle review underway of the initial price set by the Commission.

204. To address such issues, the Commission would also determine whether any grandfathering of existing UCLL lines should be permitted.
205. The price for the wholesale service used to support traditional voice services (the UCLFS) is set by reference to the UCLL price. End-users who only use voice services should not be subject to the new UCLL price set by the Commission (as they don't benefit directly from the fibre upgrade). At the wholesale level, this means that where the low frequency UCLF service is purchased without a broadband service, the wholesale price should not be increased.



Questions:

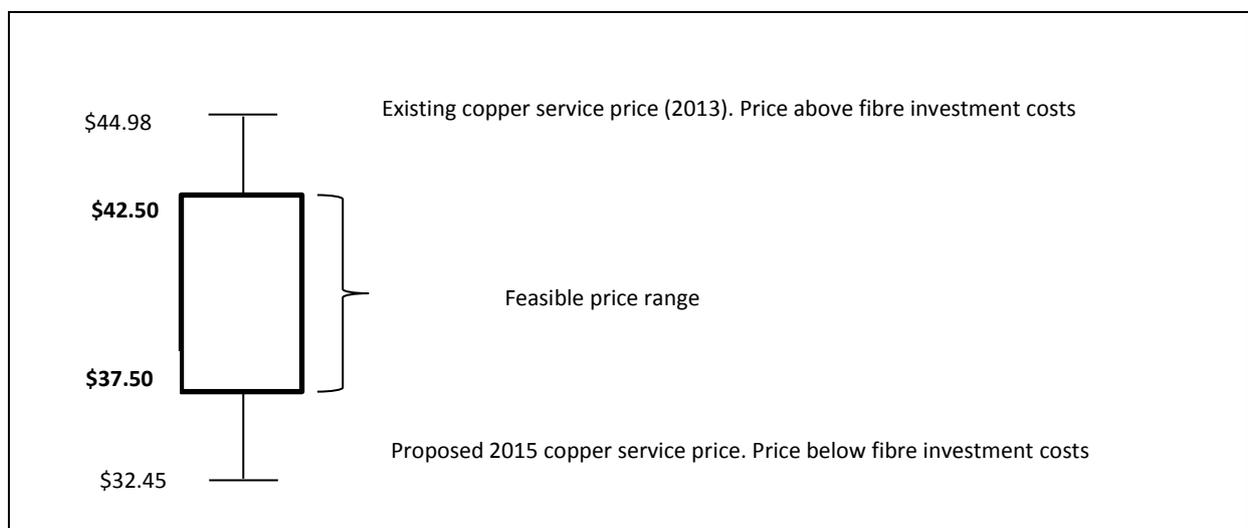
7. What are your views on the specifications, advantages and disadvantages of option 1?
8. What factors should the Commission take into account when setting a total copper price (UCLL+UBA) within the entry level fibre price range?
9. Do you agree that end-users who only use voice services should not be affected by price changes relating to the fibre upgrade?

Government price setting options

206. Each of the following options involves the Government setting a price for copper services as a transitional measure. The range of potential prices are bounded at the lower end by the draft outcome of the existing regulatory framework (a price of \$32.45 from 2015) based on the current approach of assessing copper costs, and at the upper end by current prices (\$44.98) that are based on retail prices prior to Telecom's structural separation. These prices were not set in reference to fibre prices.

207. By referencing fibre prices, the Government's view is that the range of feasible prices is a narrower set between \$37.50 and \$42.50. The lower end of this range is the price that Crown Fibre Holdings agreed with Chorus and LFCs as the entry level fibre price cap until 2015. This number reflects the outcome of a competitive tender process and is likely to be the lower bound for a fibre price that will recover the build costs of the UFB fibre network. The price cap for entry level fibre increases annually by \$1 between 2015 and 2019 to reach a final price of \$42.50. The box below illustrates the feasible price setting range.
208. Any price in this range would also achieve a decline in wholesale copper prices (compared to current prices) benefiting consumers. It would deliver on expectations of lower wholesale prices flowing from the 2011 Telecommunications Act amendments.

Target Price Range



209. Using market-based reference prices based on fibre costs and resetting copper prices to give effect to it, has the advantage of providing more efficient prices than modelling and it provides price certainty at an early date.
210. A key consideration is ensuring that reference prices are set at levels that avoid discouraging investment in replacement networks. Consistent with the standard regulatory approach, the price should reflect efficient new entrant costs.
211. At present, UFB fibre prices bundle the network and electronics cost elements in the same price, whereas for the copper network, these are separate prices. However, the cost of the copper network element (UCLL) can be inferred from entry level fibre prices if the cost of the copper electronics (UBA) is known or can be accurately estimated.
212. The Government is seeking submissions on what the reference price should be within the range of \$37.50 to \$42.50.

Questions:

10. What reference price do you think achieves the appropriate relativity with entry level fibre prices?

11. Do you think that the advantages of nearer term price certainty provided by the Government setting prices outweigh the advantages of a price setting process in which the Commission retains a role?

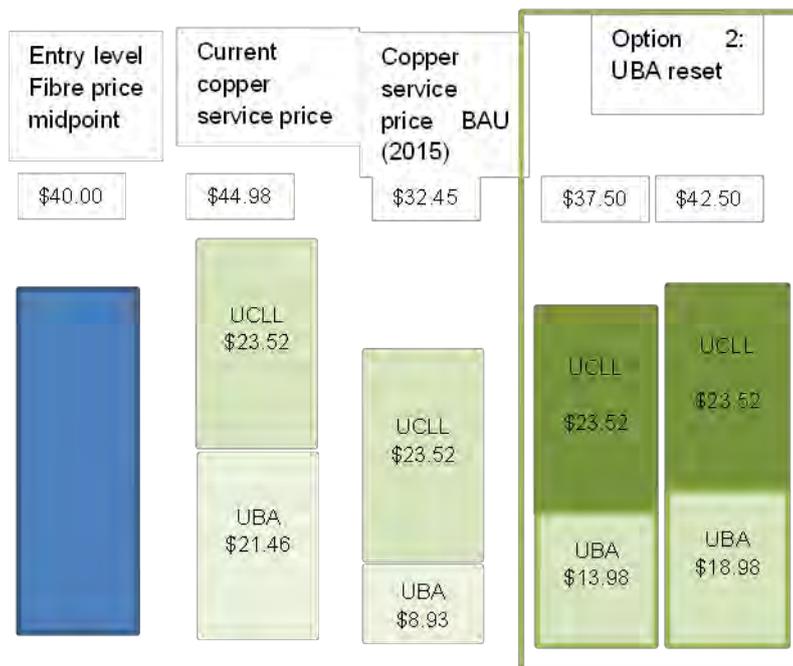
Option 2: the Government sets a new UBA price

213. This option has three steps:

- i. The Government selects a total copper (UCLL+UBA) price point in the \$37.50-\$42.50 range.
- ii. The UCLL price would be locked in at the level currently set through benchmarking by the Commission (\$23.52).
- iii. The UBA price would then be the difference between the total price set at step 1 and the UCLL price set at step 2.

214. To protect against the potential for inefficient unbundling of cabinets, the sub-loop unbundling service that connects the cabinets with households would no longer be available.

215. Based on a UCLL price of \$23.52, UBA would be reset to between \$13.98 (if the reference fibre price is \$37.50) and \$18.98 (if the reference fibre price is \$42.50). Both prices are lower than the current UBA price of \$21.46 but above the draft UBA price proposed by the Commission of \$8.93.



216. The advantages are:

- The price would be set at an early date, providing some certainty (subject to the effects on unbundling, described below).

- The total price would be clearly set with reference to competitively set replacement network costs.

217. The disadvantages are:

- As noted above, benchmarking should be a reasonable way of estimating replacement costs for assets like electronics, which are less sensitive to particular local conditions than investments requiring large scale civil works.
- The price for UBA would most likely have to be increased from the benchmarked UBA price to ensure that the total (UBA+UCLL) copper price would be equivalent to entry level fibre prices.
- This creates a risk that the UBA price would be too high relative to the underlying costs of the UBA electronics, which would encourage RSPs to unbundle.
- In these circumstances, unbundling would be inefficient and would undermine investment in a replacement network.

218. This option is relatively simple to implement. The Government would seek to implement this approach by the original implementation date of November 2014 if this became the preferred option.

219. Unbundling has to date been limited. One reason for this is that Telecom has been constrained from unbundling until 2014. When this moratorium ends, if the UBA price is set above the actual cost to achieve overall parity between copper and fibre prices, there is the possibility that Telecom would undertake large scale unbundling. As noted, unbundling is not inefficient in itself, but it would be if it resulted from inefficiently set UBA prices, or UCLL prices that are too low.

220. To address the potential for inefficient unbundling, this option includes removing the sub-loop variant of the UCLL service from Schedule 1 of the Act. The sub-loop variant is a service available on cabinetised lines that links the end-user's premises to a streetside cabinet (rather than to the exchange, as would be the case with a standard UCLL service). RSPs can install their own equipment in the cabinet to provide broadband services that are different to Chorus' services.

221. This variant of the UCLL service is potentially available on around half of all copper lines, but currently has very low demand because it requires a significant customer base served from each cabinet to make it viable for an RSP. However, Telecom may have enough customers served from each cabinet to make sub-loop unbundling viable when unbundling becomes available in 2014. Removing this option would lessen the risk of deterring efficient investment in replacement networks that might arise if the relativities between UBA and UCLL were not set correctly (for example, if the UBA price were too high and the UCLL price too low). The UCLL service would continue to be offered and new unbundling would be available on non-cabinetised lines (i.e. from the exchange).

222. This option could result in different effects on RSPs depending on the mix of wholesale products they use. Larger RSPs (such as Vodafone and Telecom) who have unbundled lines or for whom unbundling on a large scale is viable are likely to be able to avoid higher UBA prices on some lines.

Questions:

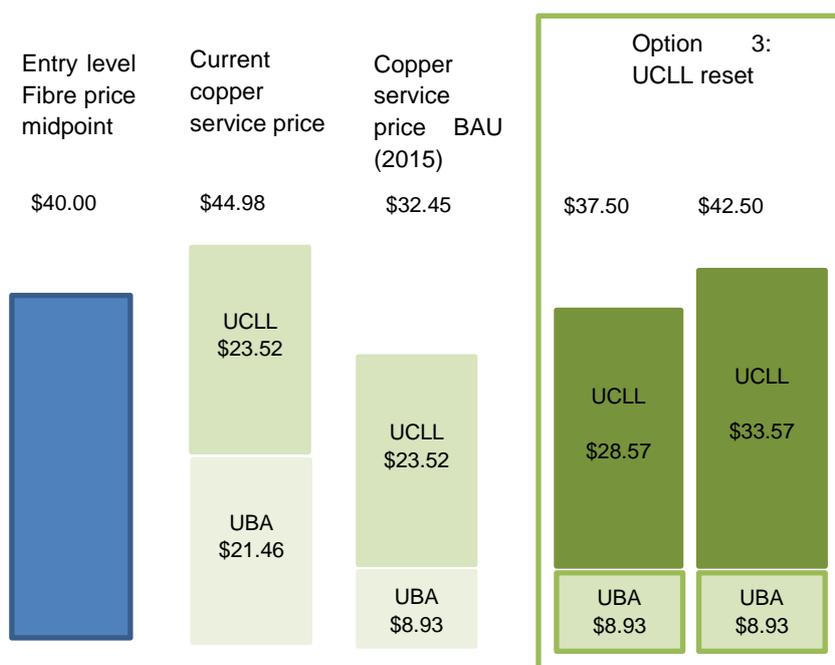
- 12. What are your views on the specifications, advantages and disadvantages of option 2?
- 13. Do you agree that the sub-loop service should be withdrawn if UBA is reset to achieve the reference fibre price?

Option 3: the Government sets a new UCLL price

223. This option involves three steps:

- i. The Government selects a total copper (UCLL+UBA) price point in the \$37.50-\$42.50 range.
- ii. The UBA price would be locked in at the level set through benchmarking by the Commission (currently \$8.93 but to be finalised in late August/early September 2013).
- iii. The UCLL price would then be the difference between the total price set at step 1 and the UBA price set at step 2.

224. Based on a UBA price of \$8.93, UCLL would be reset to between \$28.57 (if the reference fibre price is \$37.50) and \$33.57 (if the reference fibre price is \$42.50).



225. The advantages are:

- The price would be set at an early date, providing certainty for all parties.
- The total price would be clearly set with reference to competitively set replacement network costs.
- The margins between UCLL and the total copper (UCLL+UBA) prices would remain the same as those set by the Commission under the current regime, so incentives to unbundle should remain the same.
- There would be less incentive than Option 2 for telecommunications companies to undermine investment in replacement networks by inefficient unbundling.

226. The disadvantage of this option is if the benchmarked UBA price is not accurate, then the price of the UCLL component may be too high or too low.

227. This option is relatively simple to implement. The Government would seek to implement this approach by the original implementation date of November 2014 if this became the preferred option.

228. There would be no glide path (i.e. the price would apply from November 2014). However, there would be grandfathering of current UCLL prices to RSPs with existing unbundled lines (as at November 2014) to allow for the recovery of those investments by RSPs.

229. Under this option, a greater portion of the total copper service price would be made up of the UCLL price. This is likely to be the appropriate balance – given that civil engineering costs make up a high proportion of the costs of the replacement fibre network, it is more likely that UCLL prices have been set too low rather than UBA prices.

230. As with Option 1, end-users who only use voice services should not be subject to the new UCLL price (as they don't benefit directly from the fibre upgrade). At the wholesale level, this means that where the low frequency UCLF service is purchased without a broadband service, the wholesale price should not be increased.

Questions:

14. What are your views on the specifications, advantages and disadvantages of option 3?

15. Do you think resetting the UCLL price is preferable to resetting the UBA price?

16. Are there any other options that should be considered?

Creating equivalence between copper and fibre through a levy

231. The Government has also considered the use of a levy to achieve equivalence between copper and fibre. This would involve the following:

- retaining the final benchmarked UBA and UCLL prices set by the Commission

- 
- selecting a reference fibre price using entry level UFB prices
 - (assuming the final Commission prices are below the reference fibre price) then introducing a levy to create equivalence between the combined UCLL and UBA price and the reference fibre price. The levy would apply to the UCLL price.
232. The advantage of a levy option is that it creates a direct link to encouraging investment in the fibre network. The levy could be used for a variety of purposes to benefit users of the fibre network, for example supporting broadband roll-out objectives such as addressing any barriers to installation in some circumstances.
233. The Government, however, has decided not to test this option further because of two significant disadvantages, in addition to the obvious set-up requirements and potential for significant on-going administration costs :
- For Chorus and the LFCs who are building the replacement fibre network, it may create further investment uncertainty until there is clarity regarding how the levy would be used to support the roll-out of a fibre network.
 - More fundamentally, regulated prices would diverge from known efficient replacement costs.

Coverage

234. Geographically, there are three types of areas to which revised copper prices could apply:
- areas where the incumbent copper network provider (Chorus) is also the fibre network provider
 - areas where LFCs are the fibre network providers (the incumbent copper network provider (Chorus) is not the fibre network provider)
 - areas where no fibre-to-the-home network is proposed, but Chorus provides a copper network.
235. A final issue to consider is whether any revised copper prices should apply nationally, including in areas outside the UFB coverage area, where it is unlikely that a replacement fixed network will ever be built. In considering this it is worth noting that under all the options set out in this chapter, all RSPs will face lower wholesale prices than are currently in place, including those in areas outside the UFB footprint.
236. It is proposed, at this time, that copper prices should be set nationally and not on a different basis in non-UFB areas. If entry level fibre prices are a good proxy for replacement network costs, then in theory copper prices at that level should provide the right incentives for investment across the whole network.



Questions:

17. Should the copper price for customers outside the UFB coverage area be set on a different basis, given that they will not immediately benefit from investment in replacement networks?
-

Chapter 6: Future phases: review of the regulatory framework from 2020

237. Future phases of the review will consider the regulatory framework from 2020, when the roll-out of the ultra-fast fibre network will be largely completed and new mobile technologies deployed. Future phases of the review are expected to be undertaken over a number of years which will allow further developments in the market to be taken into account.
238. The primary aim of future phases will be to develop optimal regulatory settings for the telecommunications market from 2020, on the basis of the regulatory principles set out earlier, that is:
- promoting competition for the long-term benefits of end-users
 - encouraging efficient investment for the long-term benefits of end-users
 - supporting innovation in telecommunications markets
 - deregulating where sufficient competition exists
 - technology neutrality as a general principle, with any exceptions to this approach clearly articulated
 - where policy initiatives support social objectives (e.g. TSO type services), such measures should have the least distortionary effect, and be transparent.
239. The completion of the UFB build in 2020 provides a natural break point for the regulatory framework. The review will need to consider whether an alternative framework would be preferable for ensuring appropriate access to bottleneck facilities from that point. This will likely include consideration of:
- relying only on generic price control under Part 4 of the Commerce Act 1986
 - the potential to adopt Australian regulatory approaches such as Standard Access Undertakings and/or 'building block' pricing principles²⁷
 - the potential for intermodal competition between fixed and wireless networks to lead to deregulation, and other options.
240. The Commerce Commission's views on the appropriate regulatory settings post-2020 in the light of experience during the transitional period will be particularly valuable.
241. The rest of this chapter considers other more specific issues that could also be addressed.

²⁷ Building block methodology accounts explicitly for each cost category or 'building block' faced by the regulated business, adding each of the blocks together to determine the business's total revenue requirement. Revenues calculated using the building block methodology would cover a service provider's efficient costs, including a commercial return on investment that is commensurate with its legitimate commercial interests.

Availability of content

242. For residential consumers, the ability to access valued content will become increasingly important and will be an important driver of uptake of faster broadband services. A number of content delivery business models may be in place, with OTT suppliers of content challenging traditional telecommunications and broadcasting models.
243. The availability of premium content may pose a challenge to the uptake of faster broadband services and the effective operation of that market. The issues that may need to be looked at include:
- **Convergence and content regulation:** the second phase of the review could consider whether the scope of access regulation needs to be broadened in light of the increasing convergence of content delivery across common platforms. At present, there is insufficient evidence of on-going problems in the market, with premium material (such as the English Premier League rights) becoming available to online distributors. The current Commerce Commission investigation of SKY TV will help inform consideration of this issue. (It is not proposed that the review cover content issues that relate to broadcasting rather than competition, such as standards, advertising, and availability of premium sports on free-to-air television).
 - **Net neutrality:** the review could consider whether the potential for retail service providers to discriminate between traffic in favour of their own (or affiliated) content is of sufficient concern to require additional regulatory powers.
244. Given the early stage of the UFB roll-out, the fact that a number of players are yet to finalise their initial UFB offerings and the on-going nature of the Commission's SKY TV investigation, the Government's view is that it makes sense to let the market evolve further before looking at these issues in more depth.

Other issues in the fixed broadband market

245. Aside from the issues of investment in broadband infrastructure and content regulation, there are other issues that may challenge the uptake of broadband services and the effective operation of that market. These include:
- **Backhaul and interconnection services:** the review could consider challenges likely to face RSPs in obtaining sufficient national transport capacity within New Zealand; developing appropriate interconnection with other RSPs and the internet to support access to content; and in ensuring high bandwidth and delay-sensitive content is delivered to customers from caches or content servers within the RSP's own network.

The ability of regulatory settings to address other issues

246. Based on emerging trends overseas, or foreseeable in New Zealand, we can also identify a number of other regulatory issues that could have greater prominence in the medium to long term:

- **Scope and effect of regulatory tools:** at present the regulatory framework provides a relatively limited ability to apply remedies to the entire industry or to support intervention at the retail level (for consumer protection or other purposes). The review could consider options that include the potential to introduce a licensing regime, giving universal effect to industry codes of practice, and/or measures equivalent to the 'General Conditions of Entitlement' that are used by Ofcom in the United Kingdom to regulate the activity of communications providers.
- **Scope of regulation:** under the current "ladder of investment" approach, regulation is applied to both the ultimate product provided by access provider (for example UBA) and to inputs for that product (for example, UCLL). The review could consider whether it is necessary to continue to regulate at both of those levels, particularly when competition is effective at the input level.
- **Network migration:** The review will need to consider whether there is a role for the regulatory framework to support or facilitate consumer migration to the fibre network when a tipping point is reached, analogous to the Government's involvement in the digital switchover.
- **Merits review:** the framework currently allows for review of the Commission's decisions on points of law and on process grounds. Some other jurisdictions also give scope for review on the basis of the underlying merits of the regulatory decision.
- **Regulatory consistency with Australia:** as well as examining the Australian regulatory approach as part of consideration of alternative regulatory frameworks, the review could examine the merits of regulatory consistency with Australia and the value that further alignment might have for economic relations.

Questions:

18. Do you think that the issues identified in this section should be examined as part of the review?
 19. Are there any other issues that you consider should be covered in future phases of the review? If so, when?
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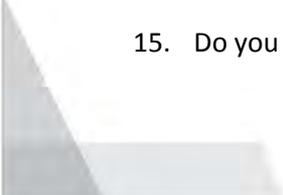


Chapter 7: Recap of questions

Chapter 4: Is the current regulatory framework fit for purpose during a period of significant network replacement?

1. Do you think the current regulatory framework provides the right incentives to support investment in the replacement of the fixed access network?
2. Do you agree that entry level UFB prices set through a competitive tender process are a reasonable proxy for replacement network costs when setting prices for copper?
3. As migration from copper to fibre occurs, are there any transitional issues (such as access to services traditionally delivered over copper) that you wish to see addressed?
4. Should Chorus be required to maintain/supply both copper and fibre access infrastructure, if:
 - TSO services can be provided on fibre; and
 - access to the fibre network is available on reasonable terms?
5. If not, what safeguards are necessary for access seekers and end-users to ensure an efficient transition?
6. Are there any other copper to fibre migration options that the Government should consider?

Chapter 5: Setting network access prices during the transition

7. What are your views on the specifications, advantages and disadvantages of option 1?
 8. What factors should the Commission take into account when setting a total copper price (UCLL+UBA) within the entry level fibre price range?
 9. Do you agree that end-users who only use voice services should not be affected by price changes relating to the fibre upgrade?
 10. What reference price do you think achieves the appropriate relativity with entry level fibre prices?
 11. Do you think that the advantages of nearer term price certainty provided by the Government setting prices outweigh the advantages of a price setting process in which the Commission retains a role?
 12. What are your views on the specifications, advantages and disadvantages of option 2?
 13. Do you agree that the sub-loop service should be withdrawn if UBA is reset to achieve the reference fibre price?
 14. What are your views on the specifications, advantages and disadvantages of option 3?
 15. Do you think resetting the UCLL price is preferable to resetting the UBA price?
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16. Are there any other options that should be considered?
 17. Should the copper price for customers outside the UFB coverage area be set on a different basis, given that they will not immediately benefit from investment in replacement networks?

Chapter 6: Future Phases: review of the regulatory framework from 2020

18. Do you think that the issues identified in this section should be examined as part of the review?
19. Are there any other issues that you consider should be covered in future phases of the review?
If so, when?



Annex A: Submissions process

You are invited to make a written submission on this issues raised in this discussion document.

The closing date for submissions is **5.00pm, Friday 13 September 2013**.

Specific questions are listed at the end of relevant sections, and the full set of questions is listed at the end of Chapter 7. The Ministry of Business, Innovation & Employment (the Ministry) welcomes comment on some or all of the questions raised, as well as broader comment on the issues.

Submissions will be considered by Ministry officials. The Ministry will then provide advice to Ministers on the Telecommunications Regulatory Framework Regime.

Sending your submission

Submissions should be sent to:

Telecommunications Review Team
Ministry of Business, Innovation & Employment
PO Box 1473
Wellington 6140
New Zealand

Delivery address: 33 Bowen Street, Wellington 6011

Email: telcoreview@mbie.govt.nz

If you post your submission, please also send it electronically if possible (as a PDF or Microsoft Word document).

Publication of submissions

Written submissions may be published at www.med.govt.nz/telcoreview. We will consider you to have consented to publication by making a submission, unless you clearly specify otherwise in your submissions. **If sensitive material in your submission cannot be published, please provide two versions of your submission – a full version and a publishable version.**

In any case, all information provided to the Ministry in response to this discussion document is subject to public release under the Official Information Act 1982. **Please advise if you have any objection to the release of any information contained in a submission**, and in particular, which part(s) you consider should be withheld, together the with reason(s) for withholding the information. We will consider all such objections when responding to requests for copies and information on submissions to this document under the Official Information Act 1982.

The Privacy Act 1993 establishes certain principles with respect to the collection, use, and disclosure of information about individuals by various agencies including the Ministry. It governs access by individuals to information about themselves held by agencies. Any personal information you supply in the course of making a submission will be used by the Ministry only in conjunction with the matters covered by the documents. **Please clearly indicate in your submission if you do not wish your name to be included in any summary of submissions that the Ministry may publish.**



Annex B: Access prices under the existing regulatory framework

Local loop (UCLL) prices

1. UCLL prices are set on a forward-looking, cost-based approach (TSLRIC). In December 2012 the Commission reset this price. The new price geographically averages local loop prices in 2014 (as required by the Act) so that a single rate of \$23.52 will apply across the country.
2. In addition to the UCLL service, Chorus also provides access to low frequency copper through the Unbundled Copper Low Frequency service (UCLF). This service is used principally by Telecom for voice and dial up services. The price for this service is set at the geographically averaged UCLL price and is currently \$23.52. Telecom is prohibited from purchasing UCLL services from Chorus until after November 2014.

Electronic equipment (UBA) prices

3. The current UBA price has been determined on a retail-minus basis²⁸. The Telecommunications (TSO, Broadband, and Other Matters) Amendment Act (2011) requires that from 2014²⁹ the UBA price is to be determined on a forward-looking, cost-based approach. In December 2012, the Commission released its draft UBA price following the forward-looking, cost-based approach (under the initial pricing principle). The draft price is \$8.93 compared to current prices of \$21.46.

Application of access prices

4. The effect these prices have on RSPs depends on the bundle of services they use. For example, Telecom (which owns the PSTN voice platform³⁰) purchases Chorus' UCLF service to offer voice services and purchases UBA access for its broadband services (also from Chorus). The regulated price for the access to these services is \$44.98 (\$23.52 for the UCLF and \$21.46 for the UBA). From 2014 Telecom will be able to use UCLL services from Chorus and install its own broadband equipment. The table below illustrates how the changes in access prices impact on the bundle of services Telecom accesses.

²⁸ Since the structural separation of Telecom, this approach can no longer be used (as it would mean that Chorus' revenue would be determined by Telecoms retail pricing strategy).

²⁹ Currently under the Telecommunications Act 2001, the new UBA price comes into effect from November 2014. The Government is introducing a bill to delay the implementation of the new UBA price until 2015. By extending the implementation date, the objective is to provide sufficient time for this review to consider copper pricing issues and solutions to be developed and considered. However, under some options this change will not be necessary.

³⁰ This is the public switched telephone network (PSTN). That is, the equipment that enables calls to be made between Telecom customers and to be exchanged with other RSP provider customers.

	UCLL	UCLF	UBA	Total
Pre-structural separation (note these prices were paid as internal transactions within Telecom)	\$19.84	-	\$21.46	\$41.30
<i>Current</i>	-	\$23.52	\$21.46	\$44.98
<i>Post November 2015</i>				
UCLF + UBA	-	\$23.52	\$8.93 (draft)	\$32.45
UCLL	\$23.52	-	-	\$23.52

5. Other RSPs can, broadly speaking, access three different bundles. One bundle involves the purchase of voice services from Telecom (on a retail-minus basis) and the purchase of UBA service from Chorus. The price for access to these services is [\$23.52 + margin] for the UCLF and \$21.46 for the UBA. The second bundle involves purchasing “naked” UBA services from Chorus. The price of naked UBA services is the UCLL (geographically averaged³¹) plus the UBA increment (\$23.52 + \$21.46). The third bundle is for an RSP to access UCLL services and (install its own broadband equipment on Chorus’ copper network). The regulated price that applies currently in urban areas is \$19.08. The effect of these regulatory changes on these bundles is set out in the following table.

		Resold UCLF	UCLL	UBA	Total
Voice and bitstream bundle³²					
	Current	\$23.52 + a margin	NA	\$21.46	\$44.98 + resale margin
	Post November 2015	\$23.52 + a margin	NA	\$8.93 (draft)	\$32.45 + resale margin
Naked broadband³³					
	Current	NA	\$23.52	\$21.46	\$44.98
	Post November 2015	NA	\$23.52	\$8.93	\$32.45
Unbundled local loop					
	Current	NA	\$19.08	NA	\$19.08
	Post November 2015	NA	\$23.52	NA	\$23.52

³¹ As of separation date, the geographically averaged UCLL price applied. For those with naked UBA before separation date a lower price of \$19.84 applies.

³² The price for clothed UBA (that is, broadband services that are coupled with voice services) is the UBA price (use of the local loop having already been incorporated into the UCLF price). After November 2014, the price for clothed UBA will recover the cost of the local loop as well as use of the equipment (that is, the UBA service price will be the UCLL plus the UBA price).

³³ The price for naked UBA (that is, broadband services without voice services) is the UCLL price (for use of the local loop) plus the UBA increment price (for use of the electronic equipment).



Annex C: International regulatory experiences during investment and transition to new replacement fixed networks

Policy debate in Europe

The position of the European Commission

1. The European Commission has explicitly recognised the effect that wholesale copper prices have on the incentives of network owners to invest in fibre, and ruled out reducing copper prices as an option for supporting investment incentives.³⁴ The Commission concluded consumers would see copper and fibre services as direct substitutes and “given the significant competitive relationship between copper and NGA networks, we are not convinced that a phased decrease in copper prices would spur NGA investment.” The Commission explicitly noted that fibre investment was progressing relatively well in some Member States where copper prices were around or above the EU average.
2. The Commission was unequivocal that cost-based access to copper infrastructure needed to be linked to the costs associated with fibre investment: “the appropriate ‘modern equivalent asset’ for calculating copper access costs seems to be a fibre network: after all, no operator would today build a copper network”.³⁵
3. To the extent fibre services are price regulated, the Commission’s 2010 Recommendation notes that regulators should apply an investment risk premium to allow for an increase in wholesale access prices on the new fibre network. An example of how this might be applied in practice is given below in the discussion of the approach of the Netherlands to regulation.

The views of other European organisations / stakeholders

4. The unsettled nature of this debate in Europe has been highlighted by a number of recent policy papers issued by stakeholders.
5. The Body of European Regulators for Electronic Communications (BEREC) disagrees with the Commission’s view that wholesale copper prices could potentially be used to incentivise investment or influence consumer behaviour.³⁶ BEREC considers cost-based pricing for copper infrastructure (and fibre, with appropriate risk premiums) will ensure efficient investments are

³⁴ European Commission, ‘Enhancing the Broadband Investment Environment’ http://europa.eu/rapid/press-release_MEMO-12-554_en.htm, 12 July 2012

³⁵ Ibid

³⁶ BEREC, “BEREC’s answer to the Commission’s questionnaire on costing methodologies for key wholesale access prices in electronic communications” http://ec.europa.eu/information_society/policy/ecomm/doc/library/public_consult/cost_accounting/2_BEREC.pdf (December 2011)



made, and the question of whether they are made in fibre or other technologies should be left to competitive pressures.

6. The European Fibre-to-the-Home Council considers there is a need to ensure copper access pricing does not undermine fibre investment and uptake, and has proposed three alternative regulatory solutions to ensure an efficient transition:³⁷
 - A ‘copper tax’ could be used make copper less attractive, with the revenue made available to support fibre roll-out (to avoid windfall gains to the incumbent).
 - Allow incumbents to withdraw copper access products once they offer fibre-based services, in order to prevent competition from ‘cheap’ copper undermining investment in fibre.
 - Apply a blended average access price for both copper and fibre that treat copper and fibre as one network: the wholesale price would be low to start with (representing low fibre penetration) but the price would increase as fibre is rolled out (giving the incumbent a strong incentive to invest in fibre).
7. The International Telecommunications Union also considers inadequate regulation of copper could defer investment in newer fibre broadband services and notes one remedy is to enable an incumbent to progressively retire copper infrastructure in areas where they have invested in a fibre access network (thereby removing the ability of copper to undermine fibre investment and uptake).³⁸
8. The European Telecommunications Network Operators’ Association noted that, although there is no agreed solution on how to facilitate investment and transition, “there does appear to be one unambiguous conclusion, namely lowering the price of copper would harm the investment case for entrants and competing platforms (wholesale and retail prices are linked and retail prices for one platform impact on others).”³⁹
9. By contrast the European Competitive Telecommunications Associations (which typically represents new entrants) has indicated that copper prices should be cut substantially to incentivise incumbents to invest in more profitable fibre infrastructure.⁴⁰ To ensure copper does not undermine fibre transition (and incumbents don’t have to maintain two costly networks) it supports the incumbent withdrawing copper in areas where they have rolled out fibre – provided there is open and cost-based access in place for the new infrastructure.

³⁷ DotEcon, “Regulatory policy and the roll-out of fibre-to-the-home networks: a report for the FTTH Council Europe”

http://www.ftthcouncil.eu/documents/Reports/Dot-econ_Regulatory_Report.pdf (July 2012)

³⁸ http://www.itu.int/ITU-D/treg/broadband/ITU-BB-Reports_RegulatingPrices.pdf

³⁹ Plum Consulting, “Copper pricing and the fibre transition – escaping a cul-de-sac” <http://www.etno.be/datas/publications/studies/plumreport-costing-dec2011.pdf> (December 2011)

⁴⁰ WIK-Consulting, “Wholesale pricing, NGA take-up, and completion” http://www.ectportal.com/en/upload/WIK/WIK%202011%20-%20Wholesale%20pricing%20NGA%20take-up%20and%20competition%20-%20Final_Report_2011_04_07.pdf (April 2011)

Regulatory approaches

Australia

10. The Australian policy has been designed in a manner that avoids the transitional investment problem posed by competition between copper and fibre services. The Government secured Telstra's agreement to retire its existing copper access infrastructure 18 months after the NBN has been deployed in a region (with the NBN effectively purchasing copper connections from Telstra as part of the Government's A\$30.4 billion funding contribution). This forced migration of consumers means that the risk of low consumer uptake is largely irrelevant, and provides certainty about returns.
11. To provide additional regulatory certainty, wholesale prices will be set under a 30-year Special Access Undertaking: specified for the first five years, with price increases capped after this at an annual increase of 1.5 percent below the official inflation rate.

United Kingdom

12. Ofcom's approach to supporting investment in next-generation fixed infrastructure has been to give the incumbent BT flexibility over the price at which it wholesales access to its fibre-based services. Ofcom has been very explicit that it has given BT pricing flexibility over fibre while retaining cost-based LLU and passive services (ducts and poles) because it is primarily concerned at this point in time with not stifling investment.⁴¹
13. Ofcom signalled it was unlikely to favour making changes to pricing of copper services to further support migration/investment, but said it could not completely rule out doing so in the future:⁴²

If investment were to be secured on such a basis [an increase in copper prices] it would negatively affect those consumers who do not value the new services by forcing them to pay higher prices. In effect, those consumers who do not value next generation access investment would be subsidising those consumers who do....

However, we recognise that the presence of externalities may mean that a strict interpretation of this principle may not be appropriate in all cases. For example, some aspects of investment may confer social and economic benefits on a broader range of consumers than only those who consume next generation services. In such a scenario it may therefore be appropriate to allow the prices to rise on products which do not rely on the investment in next generation access networks.

14. Ofcom has also recognised the need to address transition between networks in the future, noting that where there is a common owner of copper and fibre networks it can be costly and

⁴¹ Ofcom, 'Review of the Wholesale Local Access Market' http://stakeholders.ofcom.org.uk/binaries/consultations/wla/statement/WLA_statement.pdf (October 2010)

⁴² Ofcom, 'Delivering super-fast broadband in the UK: Promoting investment and competition' http://stakeholders.ofcom.org.uk/binaries/consultations/nga_future_broadband/statement/statement.pdf (March 2009)

economically inefficient for the regulatory regime to support the maintenance of two duplicate access networks.⁴³

The Netherlands

15. The approach taken by Authority for Consumers and Markets (ACM) in the Netherlands (previously OPTA) has been to establish ex ante wholesale price caps for fibre access assets (with a requirement for access providers to supply unbundled fibre, not wholesale broadband access). The key features of this regime are:

- At the outset of a fibre roll-out, a wholesale price cap is set by the regulator based on the actual capital expenditure of the network build as outlined in a ‘realistic’ business case (assuming a 25 year return), with the cap increasing with CPI.
- Every three years the regulator calculates the provider’s actual internal rate of return and compares it against an “all-risk WACC”, which consists of:
 - the standard WACC for returns from copper infrastructure
 - a premium for the risks associated with a fibre investment
 - a premium for asymmetrical regulatory risks faced by the investor (set at 3.5%).
- If the provider’s returns exceed the permitted all-risk WACC then the wholesale cap is adjusted downwards; and if the rate of return is less than the all-risk WACC then the price ceiling is not adjusted.

16. The Dutch approach supports infrastructure investment by removing the risks associated with regulatory uncertainty, while also preventing excessive pricing by the network owner.⁴⁴

Singapore

17. The Singapore government is also supporting the roll-out of fibre access infrastructure with public funding. The risk of tension between copper and fibre wholesale pricing appears to be being mitigated in Singapore through a managed migration plan. For example, Singtel, the incumbent operator and minority-shareholder in the new fibre entity, has recently announced that from December 2013 consumers moving into new homes will not be able to receive copper telephone services.⁴⁵

⁴³ Ofcom, ‘Delivering super-fast broadband in the UK: Promoting investment and competition’ http://stakeholders.ofcom.org.uk/binaries/consultations/nga_future_broadband/statement/statement.pdf (March 2009), paragraphs 9.1-9.24. See also See Cave, Fournier, and Shutova “The Price of Copper and the Transition to Fibre” 2012.

⁴⁴ The European Commission has criticised the approach of ACM, requesting the removal of cost-based obligations on fibre infrastructure, noting excessive pricing can be avoided by ensuring cost-based access to copper services and non-discrimination obligations are in place

⁴⁵ <http://www.straitstimes.com/breaking-news/singapore/story/services-delivered-over-traditional-phone-lines-cease-new-buildings-20>



Italy

18. The Italian regulator currently requires the incumbent, Telecom Italia, to provide unbundled access to its copper and fibre access infrastructure. The price for an unbundled copper loop has recently been adjusted to take into account expected investment in next-generation infrastructure,⁴⁶ while cost-based pricing for virtual and physical access to the fibre network incorporates a risk premium for the investment made in next-generation services.

⁴⁶ Telecom Paper “Italian regulator proposes wholesale broadband fees to 2016 <http://www.telecompaper.com/news/italian-regulator-proposes-wholesale-broadband-fees-to-2016--935428> (4 April 2013)