

Vodafone New Zealand

Chorus UBA: Non-price terms

Response to the Commerce Commission's Section 30R
Review of the UBA Standard Terms Determination:
Process and Issues Paper.



5 May 2016



Executive Summary

New Zealand has a bright, connected future. Today's investment in world-class fibre and wireless networks are setting the foundation for future-proofed, high-speed broadband right across New Zealand. For many, that reality exists today. Looking ahead to 2020, fibre will reach 80% of Kiwi families and businesses and the technology roadmap for 4G and 5G wireless services will accelerate well beyond the Government's goals of 50Mbps broadband to 99% of New Zealanders by 2025.

That said, we know that the legacy copper network will remain an important part of how some Kiwis get the most out of broadband access for some time to come. Today, UBA is the most common input used by Retail Service Providers (**RSPs**), like Vodafone, to provide broadband to families and businesses in New Zealand. Looking forward, fibre is forecast to grow to 46% of fixed connections by 2019, however copper will remain an important part of the mix.

Since the non-price terms for UBA were set in 2007, the communications marketplace—and the way Kiwis use broadband services—has changed considerably. For example, the introduction of VDSL, the structural separation of Telecom, and an explosion of demand for data and major investment in NGA roll-out, have all contributed to a major shift in the New Zealand communications market, and the future relevance of the copper network.

As such, we support the Commission's consultation to ensure that regulated UBA copper services remain "fit for purpose". This is an opportunity to take stock of the current non-price terms originally set in 2007, and ensure they're set in a way that best promotes the long-term benefit of the end-users of telecommunications services in New Zealand.

This will be best achieved by:

- 1.** Recognising that copper access will remain an important access technology in the short to medium term. Ensuring it is fit to continue to provide broadband services—especially in areas where fibre and high-speed mobile broadband (together, **NGA services**) are not yet available—is critical.
- 2.** Ensuring that long-term investment in NGA services is incentivised, by avoiding forced inefficient investment in legacy copper networks when high-speed alternatives are available (noting that Chorus may choose, commercially, to invest in competing with high-speed NGA alternatives).
- 3.** Retaining the existing UBA regulated services, which enable both ADSL and VDSL products. While Chorus should not be prevented from offering commercial variants, this cannot be at the cost of degradation or narrowing the scope of the current regulated UBA services.
- 4.** Requesting that the industry (through the TCF) review the detailed services terms for UBA (e.g., faults, installations, response times, and systems) to ensure that they are best positioned to promote a quality customer experience for copper broadband customers, and to provide any recommended changes to the Commission.

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Ensuring regulated UBA remains fit for purpose

There are a range of factors which underpin what customers want and need in a broadband connection. These include peak speeds, the ability to use certain services (which might require certain speeds, lower latency, or quality of service), installation costs and requirements, the experience when the network is congested, price, and customer service. Alongside this, different customers naturally have different needs, priorities and expectations, which can often be variously met through competing technologies and networks including copper, fibre, HFC and wireless technologies.

To deliver on these expectations, RSPs providing copper services are often dependent on Chorus providing wholesale copper inputs of unbundled local loops or UBA wholesale.

Chorus provides xDSL services “as fast as the line allows”, and many issues impacting the peak speed and reliability of copper are driven by factors including the quality and age of the copper itself, end-user equipment and household wiring. Ultimately, that means that peak speeds, and other aspects of copper broadband access which impact what types of services can be used by end users and when, are constrained by the nature of copper technology. NGA networks which are being rolled out across New Zealand address many of the challenges of inconsistent performance of the copper network. In rural New Zealand for example, the first phase of the Rural Broadband Initiative is almost complete, and will on completion cover 80% of Zone 4 addresses with 3G or 4G wireless broadband, with a technology path to improved coverage and performance into the future.

As such, the critical determinants whether regulated UBA, as a legacy copper service, is ‘fit for purpose’ are:

- experience when the network is congested; and
- the impact of service levels and other inputs on customer service.

Broadly speaking, coupled with investment in handover capacity by RSPs, Chorus has continued to invest in copper services to ensure that minimum throughput has kept pace with increasing user demand. In light of the competition faced by Chorus from competing UFB, HFC and mobile broadband, as well as migration onto its own UFB network, we believe this is likely to continue.¹ By ensuring average throughput continues to keep up with demand, UBA will continue to support typical end-user needs into the future, until such time as that customer is able to migrate to NGA services.

As throughput has increased, this has also required significant investment from RSPs in improving their own backhaul (regional, national, and international), handover links with Chorus, caching, and other network optimisation. It is critical that regulated UBA does not artificially constrain (or strand) this investment, by undermining end-user experience through peak-hour congestion in the access network.

As set out below, we consider that the impact of service levels on customer experience would be best addressed by a review of the detailed terms by the industry through the Telecommunications Forum.

¹ However this applied, it’s important that it provides sufficient flexibility for Chorus to manage its network efficiently (i.e., it is efficient for customers to migrate to fibre services than further investment be made in copper assets).

Ensuring long-term investment in and migration to NGA

While copper will remain an important part of the connectivity mix for now, we don't agree that it will (or should) remain, over the medium term, the main infrastructure over which broadband are provided to New Zealanders.

The Commission should take a technology-neutral approach and focus on the market for the provision of retail broadband services, rather than too narrow a market view by limiting assessment of competitors to fixed operators. The reality for some end users is that fixed, mobile and wireless broadband are substitutes for each other, and so the Commission must consider competition that comes from mobile broadband, and from FWA. It would be inconsistent with the interests of end-users for regulation to favour one access technology over competing alternatives.

The Commission's second objective should be to achieve the first at least overall cost to government, industry and ultimately end-users, by avoiding redundant or duplicate investments.

As at 31 December 2015, Chorus reported 1,223,000 broadband connections (including 136,000 mass market fibre connections). At the same time, the roll-out of fibre under the UFB Initiative meant 875,207 household and businesses were already able to connect to fibre. By 2019, the programme will reach over 1.45m households and businesses, with Government funding committed to take fibre even further to reach 80% of the population.

Meanwhile, our view is that the roadmap for wireless technologies (and in particular 4G and 5G services) means that for the remaining 20% of New Zealand, wireless services are already superior to copper in some areas, and will be across all rural areas in the future. Across New Zealand, this is already the reality for millions of customers: as at 30 June 2015, Statistics New Zealand reported that the number of active internet connected mobile devices increased 7% year on year, to 3,959,000 connections.

Fixed wireless access over 5G will replace legacy copper

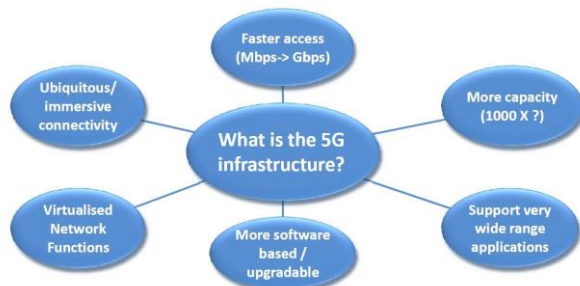
5G mobile technology, described as a once in a decade generational evolution will be available by 2020.^{2,3}

Whilst exact standards and specifications of 5G will be finalised over the next 2-3 years, Vodafone's commitment of going further and faster for rural New Zealand is built on our confidence in the service levels that 5G will enable.

² Huawei, 5G White Paper: 5G, a Technology Vision, page 9, at <http://www.huawei.com/5gwhitepaper/>

³ Early deployments are already planned in the US for 2017, and in Korea in time for the 2018 Olympics.

5G will be both evolutionary and revolutionary: evolutionary in enabling mobile devices to handle more data, and revolutionary in enabling a massive 'internet of things' ecosystem, facilitated by lower latency, larger scale and greater reliability. The European Commission's 5G-PPP vision statement⁴ includes the expectation that 5G should go 100 times faster than 4G and carry 1,000 times as much traffic in a given area. General industry views agree: 5G will have 50x lower latency (reaching 1 millisecond), and will scale to over 100x more devices (allowing Internet of Things connections almost ad-infinity).



5G is considered a clear competitor to fixed line broadband. Key reasons include:

- **Improved antenna technology.** 5G antennas will benefit from innovations in antenna technology, enabling the delivery of high capacity and high quality signals to fixed customer locations through very high frequency spectrum. The spectrum licenses for very high frequency spectrum are typically wide channels (e.g., 100-1000 MHz vs. 5-20 MHz for cellular), meaning they can technically enable very high-speed transmissions if their propagation challenges can be overcome.
- **Fibre densification to support LTE small cells.** 5G can be easily deployed as an overlay to 4G mobile small cell grids. This means that as operators deploy fibre in dense metro areas to support LTE small cells, we can also attach fixed 5G antennas to these fibre-fed LTE nodes.

Vodafone is already well on the road to 5G. We launched New Zealand's first Carrier Aggregation site in July 2014 (a "first step" on the road from 4G to 5G, as the standards are still being delivered). Today, we have hundreds Carrier Aggregation capable 4G sites, providing high-speed connectivity using a combination of spectrum. Our roadmap includes further Carrier Aggregation deployment, and a roadmap towards

⁴ European Commission, at <https://5g-ppp.eu/>

commercialised gigabit mobile broadband. We know that other operators, including Spark and potential new entrant Bluereach, have announced their intentions and ambitions for wireless connectivity using the latest spectrum technologies.

There is little benefit to “forcing” Chorus to invest in areas in which NGA is today, or will be shortly

For both urban and rural New Zealand, securing investment in and migration to NGA services is critical to ensuring the full benefits of the step-change in capability between copper and NGA can be realised.

In our view, there is little to gain in “forcing” Chorus to invest in areas where NGA is available today, or will be shortly. Chorus has ongoing incentives in these areas to ensure its network remains fit for purpose: it faces strong competition. For example, it faces significant competition from NGA in the form of:

- UFB, in particular in areas where it is not the Government’s UFB partner;
- In Wellington and Christchurch, where Vodafone has committed investment to upgrade its HFC network to provide gigabit speeds in the near future;
- Existing mobile broadband solutions (including under the RBI and services like Spark and Skinny’s fixed wireless access products). Vodafone’s Rural Wireless Broadband solution, for example, is already capable of delivering fibre-like speeds (where 4G is available), taking connectivity further and faster than will ever be possible with copper services for rural New Zealand; and
- Future wireless broadband solutions, especially as 4G investment continues and 5G is phased in from 2020.

As such, subject to confirmation that Chorus cannot make decisions that would degrade the regulated UBA service experienced today, we recommend that the status quo is preserved.

The existing UBA services (including VDSL) must remain regulated

The copper broadband market in New Zealand is supported by three core products:

- BUBA (ATM-based UBA, providing an ADSL service);
- EUBA0 (Ethernet-based UBA, generally providing an ADSL2+ service); and
- WVS (Ethernet-based UBA, providing a VDSL service).⁵

The Commission should ensure that with any changes resulting from this review, the following three key building blocks remain in place.

Chorus must be required to continue to provide BUBA, EUBA and WVS services to addresses which are currently capable of receiving those services.

⁵ Chorus’ wholesale VDSL service was first introduced as part of the BUBA product family under the UBA Standard Terms Determination, with pricing aligned to EUBA0.

The current demand for higher specification EUBA products is small, and we do not expect industry to be building new products based on higher specification EUBA connections. For this reason we would be prepared for the existing higher specification regulated services to be grandfathered until 2020, or until the NGA is fully built.

This review should preserve the current ability for Chorus to offer, or RSPs to request, commercial UBA variants. However any commercial offer must not adversely impact the provision of regulated UBA, or narrow the current regulated UBA variants of ADSL, ADSL2+ and VDSL.

Growth in bandwidth also means the 1GigE handover links are no longer sufficient to support provision of the regulated UBA service. We support the addition of a new 10GigE handover option, with the Commission setting an appropriate price for this service.

Review of detailed service terms

The service levels and detailed service terms set out in the UBA STD, as well as the systems and integrations offered by Chorus have a significant impact on RSPs ability to deliver a quality customer experience that meets our customers' expectations.

Ultimately, the UBA STD acts in place of contract between commercial entities: a single wholesale provider (with significant market power) and its wholesale customers. While it is necessary for the Commission to provide regulated access, in our view it is likely to be most effective for Chorus and access seekers to review the specific terms (e.g., the service levels and operations manual) to ensure they are fit for purpose and then make a recommendation to the Commission for any consequential amendments. Vodafone recommends that this is facilitated through the TCF (with an opportunity for the Commission to participate in working parties, as is regularly the case), as occurred with the development of UCLL, UBA and UFB services.

Finally, we recommend that a strengthened information disclosure regime is implemented. It should require Chorus to publicly report key parameters impacting UBA performance to better allow the Commission and industry participants to monitor performance. For example, this could include performance when the network is at peak congestion.

A revised information disclosure regime could be developed through the TCF process, and support any changes to the detailed service terms and service levels.

Responses to specific questions

	Question	Response
1.	<p><i>Do you agree that an anchor regulation approach should be used for the regulated UBA service? Why/why not?</i></p>	<p>Yes, an anchor regulation approach for a regulated service is appropriate. An anchor service would be designed to meet a typical end-users' needs.</p> <p>However, the nature of the service that can meet a typical end-users' needs should be technologically neutral, and should not be limited to fixed services only as suggested in paragraph 32 of the discussion paper. In assessing competitive substitutes, the analysis must include next generation broadband services including HFC cable, mobile broadband and fixed wireless access.</p>
2.	<p><i>Should the regulated UBA service be a baseline service, average service, or advanced service? Please explain how your view is consistent with section 18 purpose statement.</i></p>	<p>The regulated UBA service was designed to safeguard the ability for consumers preferring an entry level low cost service to find a basic connection option available in the market.</p> <p>The Commission's first policy objective should be to continue to safeguard options for customers who wish to pay a low charge for a basic internet connection.</p> <p>A typical end user can be described in absolute or relative terms. In absolute terms, we agree that users at the lower end of the demand curve must be able to use broadband to access and browse the internet, use VoIP and email services, confidently carry out electronic banking and shopping transactions.</p> <p>The investment in next generation fibre and mobile broadband mean that many of these customers have the competitive choice to access higher quality networks with a great range of capabilities that compete with any baseline service, and at similar prices to copper access</p>
3.	<p><i>Do you agree that the regulated UBA service should be specified to evolve over the regulated period to meet the changing needs of end-users?</i></p>	<p>In light of the significant and rapid investment in next generation networks happening today, including fibre, HFC, mobile broadband and fixed wireless access, Chorus will face an incentive to evolve its copper broadband service further, as it faces migration to competing next generation networks.</p> <p>With this expected migration, we also expect that performance will naturally continue to improve as congestion reduces.</p>

		The Commission should introduce a requirement that Chorus may not degrade the UBA service quality below current service levels, or as the result of the introduction of any commercial offer. To achieve this, the Commission could proactively monitor this
4.	<i>Should we provide any additional incentives for Chorus to develop commercial UBA variants, in addition to the ability to set prices outside the regulated price cap? If so, why and how?</i>	<p>The ability to provide higher or lower spec commercial services differing from regulated UBA is reasonable, however this must not come at the cost of the current regulated service (for example, any commercial service must not degrade or have an adverse impact on the regulated services. RSPs will decide whether or not such service is commercially viable.</p> <p>However, given copper is a legacy technology and migration to fibre and FWA is happening, we question whether viable mass market commercial UBA alternatives are practically likely to appear.</p> <p>The Commission should let competition between competing infrastructures play out, rather than specifically 'incentivising' Chorus to develop commercial UBA variants, with the resulting risk of distortion in the retail market to a legacy service.</p>
5.	<i>To what extent should the FPP price and underlying modelling assumptions be considered as part of this process?</i>	<p>Changes to the non-price terms can affect the cost to Chorus of service provision, although we note that if services are retained at current levels and not degraded, the cost of provision should be unchanged. We also note that the FPP UBA price reflects a far higher service specification than is offered today. We have no expectation that any changes considered in this review would necessitate the Commission revisiting the UBA pricing exercise.</p> <p>The Commission should introduce a requirement that Chorus may not degrade the UBA service quality below current service levels.</p>
6.	<i>Are there any other key factors we should consider when assessing possible changes to the UBA STD as part of this section 30R review?</i>	<p>In response to the questions posed by the Commission:</p> <ul style="list-style-type: none"> • The technical and functional requirements of the regulated UBA service have been superseded by Chorus. The Commission should introduce a requirement that Chorus may not degrade the UBA service quality below current service levels. • The line between the regulated UBA service and commercial variants does not require further clarification, beyond a requirement that commercial offers cannot be launched to the detriment of the regulated service.

		<ul style="list-style-type: none"> • Both ADSL and VDSL should remain regulated EUBA options, consistent with the Commission’s conclusions during consultation on the Chorus Boost services. • The Commission should consider UBA as a legacy technology across New Zealand, given all customers have today, or will soon have, access to next generation networks. • Geographic differences should not apply to the regulated UBA service specification. • A 10GigE handover option should be added to the UBA STD. • The current process for the introduction and withdrawal of commercial variants does not require amending. • The higher specification enhanced UBA (EUBA) variants should not be withdrawn from the regulated service but should be grandfathered. • Access seekers should have greater visibility of Chorus’ systems, consistent with the industry’s ongoing efforts to improve interconnection processes.
7.	<p><i>Should the UBA STD be updated to explicitly recognise that the regulated UBA service is an ‘average’ mid-specification service (or otherwise)? Why/why not?</i></p>	<p>It is not necessary for the UBA STD to be updated to explicitly recognise that the regulated UBA service is an ‘average’ mid-specification service.</p> <p>As above, the regulated UBA service was designed to safeguard the ability for consumers preferring an entry level low cost service to find a basic connection option available in the market.</p> <p>The Commission’s first policy objective should be to continue to safeguard options for customers who wish to pay a low charge for a basic internet connection.</p> <p>In light of the significant and rapid investment in next generation networks happening today, including fibre, HFC, mobile broadband and fixed wireless access, we expect that Chorus will face an incentive to evolve its copper broadband service further, as it faces migration to competing next generation networks.</p> <p>With this expected migration, we also expect that performance will naturally improve as congestion reduces.</p> <p>Any short term gains that might be realised by increasing the specification of UBA in the very short run are likely to be outweighed by the cost of infrastructure investment: wasteful for a legacy technology. Investment in copper</p>

		<p>risks duplicating investment in next generation networks, and risks undermining quality differential incentives driving customers to migrate to NGA technologies.</p> <p>Increasing UBA service levels above those actually experienced today (as opposed to the minimum specifications currently prescribed in the STD) is unnecessary. The option of a future 30R review remains open to the Commission at a later date if required.</p> <p>The Commission should introduce a requirement that Chorus may not degrade the UBA service quality below current service levels.</p>
8.	<i>Should the line between the regulated UBA service and commercial UBA variants be clarified? If so, why and how?</i>	Chorus should be able to offer commercial UBA services to the extent that there is no degradation in service levels for the regulated service.
9.	<i>Is Chorus required to provide the regulated UBA service over VDSL where available and requested by an access seeker?</i>	Yes, VDSL is part of the UBA regulated service, and a requirement for Chorus to provide regulated UBA over VDSL is consistent with the advice provided to the Commission by James Every-Palmer.
10.	<i>Should Chorus be able to withdraw the regulated UBA service over VDSL where it has already made it available to access seekers?</i>	No, Chorus should not be able to withdraw the regulated UBA service over VDSL where it has already made it available to access seekers.
11.	<i>Should there be geographic differences in the regulated UBA service specifications due to the UFB deployment?</i>	No, a uniform service across New Zealand is optimal. Development of competing networks is occurring in both urban (UFB, HFC) and rural (RBI FWA & mobile broadband). These next generation networks also deliver a superior broadband experience to copper.
12.	<i>Should Chorus be obliged to replace its ATM-based network if it is unable to meet potential changes to the technical specifications of the regulated UBA service as a result of this review?</i>	<p>No. The investment in next generation fibre and mobile broadband mean that customers have the competitive choice to access higher quality networks with a greater range of capabilities that compete with any baseline service.</p> <p>In light of the significant and rapid investment in next generation networks and expected migration off copper, Chorus will face an incentive to evolve its copper broadband service further.</p>
13.	<i>If not, under what terms should the ATM- based UBA service be provided?</i>	Chorus should be required to at a minimum maintain existing service levels for the regulated service.
14.	<i>Should Chorus be able to prioritise commercial traffic where performance</i>	Prioritisation can only occur if it doesn't degrade the service of regulated UBA product experienced today.

	<i>of the regulated UBA service is not affected.</i>	Otherwise there would be a risk that Chorus would degrade regulated UBA to create incentive for a more expensive commercial UBA product.
15.	<i>Do you agree with the addition of a 10GigE handover option to the UBA STD?</i>	Yes. Growth in bandwidth means the 1GigE handover links are no longer sufficient to support provision of the regulated UBA service. We support the addition of a new 10GigE handover option.
16.	<i>Do you agree that it is appropriate to use the 10GigE price determined in the FPP determination?</i>	
17.	<i>Are there any other sundry services that we should consider adding to the UBA STD price list as part of this review?</i>	
18.	<i>Should clause 10 of the UBA General Terms be amended to explicitly set out the key attributes? If so, why and how?</i>	
19.	<i>Should the EUBA variants be removed from the UBA STD? Why/why not?</i>	<p>The Commission should ensure that with any changes resulting from this review, these three key building blocks remain in place:</p> <ul style="list-style-type: none"> • Chorus must be required to continue to provide BUBA, EUBA and WVS services to addresses which are currently capable of receiving those services. • The current demand for higher specification EUBA products is small, and we do not expect industry to be building new products based on EUBA connections. For this reason it may be appropriate to grandfather those services until 2020, or until the NGA is fully built. • This review should preserve the current ability for Chorus to offer, or RSPs to request, commercial UBA variants, however any commercial offer must not adversely impact the provision of regulated UBA or narrow the current regulated UBA variants of ADSL, ADSL2+ and VDSL.
20.	<i>Should the UBA STD be amended to provide greater transparency of Chorus' systems for access seekers?</i>	Access seekers should have greater visibility of Chorus' systems, consistent with the industry's ongoing efforts to improve interconnection processes. Vodafone recommends that the Commission request the Telecommunications Forum review the service level terms of the existing STD, including any greater transparency in respect to Chorus systems that is required.

21.	<i>Are there any other relevant matters which we should consider as part of this review?</i>	The industry should be required (through the TCF) to review the detailed services terms for UBA (e.g., faults, installations, response times, and systems) to ensure that they are best positioned to promote a quality customer experience for copper broadband customers, and to set appropriate customer expectations.
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