Cross-submission in response to
the Commerce Commission's Consultation paper
outlining its proposed view on the regulatory
framework and modelling approach for
UBA and UCLL services (9 July 2014)

Chorus

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Executive Summary

EXECUTIVE SUMMARY

1   This submission responds to industry submissions that the Commerce Commission (**Commission**) has received on its *Consultation Paper outlining our proposed view on regulatory framework and modelling approach for UBA and UCLL services* (**Consultation Paper**) released on 9 July 2014.

2   The Commission's task in this final pricing principle process is to determine the TSLRIC price for the UCLL, SLU and UBA STD services. The statutory requirements are clear. The definition of TSLRIC - "*the forward-looking costs over the long run of the total quantity of the facilities and functions that are directly attributable to, or reasonably identifiable as incremental to, the service*" - tells the Commission that:

   2.1   The first step is to identify the service being priced – which is the UCLL, SLU and UBA services provided under the relevant STD;

   2.2   The second step is to identify the facilities and functions of that service;

   2.3   The third step is to model the forward-looking costs of delivering a service that delivers those facilities and functions over a modern equivalent asset;

   2.4   The forward-looking cost element requires ORC and by definition a new entrant has no existing assets that it can reuse; and

   2.5   Processes may be run in parallel but each service must have a TSLRIC price set separately.

3   While these statutory requirements are clear, where the Commission has discretion, a conventional application of TSLRIC is required. This has been recognised by submitters previously, and reiterated by Vodafone in this consultation:[1]

> Where discretion is available the Commission must ensure in order of priority that its judgements it makes promote and are consistent, individually and collectively, with the statutory function that it is discharging (i.e. determining the TSLRIC for UCLL and UBA services). This necessarily requires the Commission to ensure that the formula it uses falls squarely within the orthodox understanding of TSLRIC methodology. Where a question can be answered with reference to analysis of objective evidence and analysis, s18 may not have a separate observable effect.

4   While the concept of a hypothetical new entrant (**HNE**) requires the Commission to hypothesise about a network built in place of Chorus' network for the purposes of pricing the STD services, submitters agree that the HNE standard must be applied having regard to real world deployment issues. WIK states that "*the hypothetical*

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[1] Vodafone "Comments on consultation paper outlining Commission's proposed view on regulatory framework and modelling approach for UBA and UCLL services" (6 August 2014) at [D1.7].

efficient operator will work and invest under the actual conditions in New Zealand",[2] while Network Strategies observes that when *"using the hypothetical operator construct, care must be taken to establish an efficiency standard that is appropriate in local conditions."*[3] These expert views are consistent with our previous submission and evidence presented.

5   TERA, Vodafone, Spark and Analysys Mason all say that if prices from a copper modern equivalent asset (**MEA**) are lowest cost, then a copper/FTTN MEA should be applied – as we have submitted previously, this is the most straight forward approach to modelling prices for the STD services. Modelling fibre to cost copper services instead creates a starting point that requires more construction and therefore debate.

6   Whether the Commission chooses to model a fibre or copper network in setting the price for UCLL, SLU and UBA, these factors together mean the Commission should cost-in the functionality 'fixes' that will be needed to deliver the same services that end users use and expect on our network today. Not doing so would be like modelling the cost of a short airport runway suitable for an Airbus 380, even though the Boeing 777 requires a longer runway and is still widely used by most airlines.

7   The error in the approach supported by RSPs is that they seek to encourage the Commission to find the lowest cost technology to deliver telecommunications services generally (or the lowest cost runway), without understanding first the STD services that need to be delivered. A "pick and mix" approach to TSLRIC and the technologies that are modelled is inconsistent with arguments that any modelling should be grounded in reality. It also risks creating inconsistencies – with overall coherency being an important matter that the Commission's own legal adviser has advised on.[4] In a hypothetical "pick and mix" approach, there would be additional inherent costs in providing a seamless product offering across multiple technologies which should be considered, particularly given national service provision and the focus on averaging in the current regime.

8   While some submitters have encouraged the Commission to look to the EU to take a less conventional approach, the policy objective in the EU is to deliver costs of the MEA of an NGA network – not a MEA of the copper network.

9   It has been suggested in submissions that this is analogous to laying narrow gauge railway tracks, to the preclusion of bullet trains. However the price of a bullet train is not the task. The Commission is, in this analogy, regulating the price that other companies must pay to run their carriages on narrow gauge tracks, and those carriages only run on narrow gauge tracks. Switching to different tracks is expensive for carriage owners. Further, end users today rely on those narrow gauge carriages. It makes

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[2] WIK-Consult "Submission in response to the Commerce Commission's consultation paper outlining our proposed view on regulatory framework and modelling approach for UBA and UCLL services" (5 August 2014) at [29] (**Response to Consultation**).

[3] Network Strategies "Key issues in modelling UBA and UCLL services" (6 August 2014) at [58].

[4] James Every-Palmer "FPP determination: Issues re service description and the modern equivalent asset" (12 March 2014) at [43].

perfect sense for the Commission to set a price that assumes the tracks that everyone in New Zealand is using.

10   Use of a fibre and/or "pick and mix" MEA combined with potentially multiplying non-orthodox approaches to TSLRIC will mean that the process will depart further and further from finding the TSLRIC costs in New Zealand that send the appropriate build and buy signals in the New Zealand market (which is a real market with a transition to upgraded fibre infrastructure).

11   The New Zealand environment is unique given structural separation, the generational UFB investments underway, actual or potential competing networks and services and a purely cost-based regime. The risks of error are accentuated in this environment.

12   In this submission we say:

   12.1   The Commission is required by legislation to apply a forward-looking TSLRIC methodology to all three of the regulated services that are subject to price review – namely cabinetised and non cabinetised layer 1 services and the layer 2 UBA service.

   12.2   The Commission is on solid ground applying the ORC asset valuation methodology to all assets, a scorched node network design rather than scorched earth, and not seeking to make imprecise technical performance adjustments.

   12.3   Departures from these key features are departures from a standard forward-looking TSLRIC approach required by the pricing principle and they increase the risks of regulatory error.

   12.4   Submissions that the Commission should adopt European Commission developments that are not based on a forward-looking TSLRIC methodology depart from the statutory requirements.

   12.5   The Commission is right to emphasise the link between reasonable investor expectations of regulatory predictability, the resulting levels of investment in a regulated market, and the promotion of competition in that market for the long-term benefit of end users. This is consistent with the emphasis in the Telecommunications Act (section 18(2A) in particular) and the focus of other regulators.

   12.6   A number of submissions have suggested modelling approaches which cannot be viewed as one coherent orthodox interpretation of a forward-looking TSLRIC approach. The Commission has rightly identified that regulatory predictability is important and requires that the Commission apply the Act and an orthodox approach to TSLRIC pricing.

   12.7   Predictable regulation does not mean the Commission is constrained by benchmarked prices. The Commission put all parties on notice throughout the

phase one benchmarking processes that they were entitled under the regime to go to a second phase cost modelling approach. As we have said previously, we expect that, because the models will assess New Zealand conditions and costs for the first time, the prices will be higher than those set by benchmarking – which was described by the High Court as a "quick and cheap" way to estimate the price.

12.8 It is important that the Commission's model assume a real world standard of efficiency, and take into account real world constraints faced by network operators in New Zealand, rather than assume a super-efficient and unrealistic operator.

12.9 In determining the price of the regulated services the efficient cost of the modelled network must be spread over the forecast demand for the relevant service. Modelling the demand for other services means the price set by the Commission will not permit recovery of efficient costs and doesn't reflect the reality of demand.

13 There is a reasonable level of agreement that the Commission's models should be calibrated to real world conditions and a real world level of efficiency:

13.1 WIK has noted that the hypothetical efficient operator will work and invest under the actual conditions in New Zealand[5] and Network Strategies observes that "*[when] using the hypothetical operator construct, care must be taken to establish an efficiency standard that is appropriate in local conditions*."[6] These experts agree with our previous submissions and evidence provided.

13.2 Network Strategies says that the model must use the best available evidence on trenching conditions and trenching costs.

13.3 A number of submissions address the possibility of using Fixed Wireless Access (**FWA**) technology, wanting an assurance that the model uses it where it can provide the regulated service and do so most cost-effectively. We agree that those are the right questions to ask.

13.4 FWA will not deliver the regulated UCLL service as evidenced in our previous submission. While FWA will theoretically be able to deliver the regulated UBA service, it will be a very expensive way to provide service to all end users in an area and at a capacity equivalent to what is provided under that STD today. This explains why in reality FWA only has the market shares being suggested by other submitters where fixed infrastructure is poor, such as in Pakistan where DSL coverage is 12% of households. There is no regulatory precedent for cost modelling FWA for layer 1 or layer 2 services for broadband in the way suggested. 2% was used in Sweden where it was used in reality for voice only

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[5] WIK-Consult, Response to Consultation (5 August 2014) at [29].

[6] Network Strategies "Key issues in modelling UBA and UCLL services" (6 August 2014) at [58].

at the margins of the network and 1% in Australia where there was fall back satellite technology.

14   The HNE replaces in full the Chorus copper service being regulated for the purpose of finding TSLRIC prices for the STD services. This means:

   14.1   The services provided by the HNE should be capable of meeting the current demands of RSPs and the functionality that end users receive today as outlined in our previous submissions;

   14.2   The HNE would need to continue to deliver the services that our customers and the commercial and residential users they serve need, like alarms, EFTPOS and SKY;[7]

   14.3   The model cannot assume Chorus exists and makes its copper network available for sharing. This is incoherent and inconsistent with the concept of an HNE grounded in reality and finding a TSLRIC price for the regulated service in New Zealand; and

   14.4   When it comes to the UBA service provided under the STD today, we agree with the Commission that the HNE in the UBA market takes the current copper network as a given, and selects the efficient technology to use on that platform.

15   In relation to the remainder of the Commission's process, there is a three month period between now and the release of the 1 December 2014 draft determination. We have continued to suggest that the Commission consult on matters in parallel as early as possible while ensuring its timeline to April is met. In particular, we have noted that the Commission has not yet issued any information on transaction charges and it would be useful to start this consultation sooner rather than later alongside consultation on backdating.

16   We expand on these topics in this cross submission below.

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[7] For further discussion see: Chorus "Submission on regulatory framework and modelling approach consultation paper" (6 August 2014) at [32], [240], [291] – [292], and generally Appendix 2 (**August Submission**).

Submission

REGULATORY FRAMEWORK

Requirements of TSLRIC

17   The Commission is required to set forward-looking, TSLRIC cost-based prices for the UCLL, SLU and UBA services. Conventional "forward-looking" TSLRIC means that the Commission's modelling should:

17.1   Model an HNE entering the market to fully replace Chorus in providing the relevant service;

17.2   For each service being priced:

(a)   First, identify the service being priced – which is the UCLL, SLU and UBA services provided under the relevant STD;

(b)   Second, identify the facilities and functions of that service; and

(c)   Third, model the forward-looking costs of delivering a service that delivers those facilities and functions over a MEA.

17.3   Value all of the HNE's assets at ORC, not historic or depreciated current costs, otherwise the prices are not "forward-looking" and by definition an HNE has no existing assets that it can reuse;

17.4   Optimise the modelled network using a scorched node approach (which is conventional in TSLRIC, as indicated by the Commission in 2002 and 2004); and

17.5   Base the HNE in the real world, for example by evaluating actual current costs of trenching and availability of aerial deployment. An HNE for the purposes of this exercise does not face a subsidy.[8]

18   While some submitters have suggested that the Commission should depart from this framework and apply some other valuation approach, including historic costs, or European Commission frameworks that are shifting away from a forward-looking TSLRIC approach, this is asking the Commission to depart from what the legislation requires.

Section 18 and regulatory predictability

19   There has been considerable emphasis in submissions in relation to the application of section 18, and in particular on the Commission's comments regarding reasonable investor expectations. The Commission's characterisation of "reasonable investor expectations", as we see it, simply reaffirms the need to place weight on regulatory predictability and investment incentives as a necessary element in the promotion of

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[8] The task at hand is to model an HNE for the purpose of setting pricing for the cabinetised and non cabinetised STD services. Some submitters have effectively sought to suggest the HNE is providing UFB services under contract with Crown Fibre Holding. While consistent with submissions appearing to suggest any model can be used for any form of telecommunications service, that is simply not credible. It has also been proposed that a subsidy be applied. Quite apart from the fact that there is no subsidy for UFB network build, this is a completely arbitrary proposal that would lead the Commission into error.

competition for the long term benefit of end users, which was emphasised by the addition of section 18(2A). The Commission's approach is also consistent with other regulators.

20   The Commission is required to make a determination that gives best effect to the section 18 purpose statement.

21   Where the Commission has discretion, we agree with the Commission that the section 18 purpose statement is best advanced by a predictable application of TSLIC regulation.

22   We agree with the Commission's view that:[9]

> The link to section 18 is that predictability supports investment, and investment promotes competition for the long-term benefit of end-users. This concern for investment and competition is reflected in our rejection of assuming the re-use of Chorus' assets and our rejection of a capability-based performance adjustment to the UCLL FTTH MEA.

23   This approach is consistent with the focus of other regulators. For example, Ofcom has said the following in the context of setting LLU prices:[10]

> This impact on LLU operators is a concern, and has been an input to our consideration of the appropriate price path. But our intention is not to guarantee the returns of LLU operators. Rather, we aim to provide a stable and predictable regulatory framework that allows operators to make informed judgments about investments. We consider that in adopting an approach consistent with our usual approach to setting charges we will best provide such a framework.

24   In 2014, the ACCC reiterated:[11]

> …increasing the predictability and accountability of regulatory decision-making will reduce the risks associated with infrastructure investments.

25   Some submitters have sought to present the Commission's statements as a new stand-alone test. As is clear from the quote above, the Commission is saying that when implementing forward-looking TSLRIC, regulatory predictability is important to investment and investment promotes competition for the long-term interests of end users. As a major investor in telecommunications infrastructure, we agree with that reasoning.

26   The best way to promote competition for the long-term interests of end users is to create an environment where investors are confident to commit to large, long-term infrastructure investments where these are efficient. And the best way to create that environment is for the Commission to give due consideration to the reasonable

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[9] Commerce Commission, Consultation Paper (9 July 2014) at [80].

[10] Ofcom "A new pricing framework for Openreach - Annexes" (22 May 2009) at [A5.6].

[11] ACCC "Submission to the Independent Cost Benefit Analysis Review of Regulation Telecommunications Regulatory Arrangements Paper" (14 April 2014) at page 9.

expectations of investors in making a determination that best meets the s18 purpose statement.

27   We have also emphasised the importance of the market reality in New Zealand. Major investments are currently being made in network infrastructure and competing platforms and the industry is working through the challenges of migrating to UFB services. As raised by WIK, the price of copper services is influential on all of these market changes.[12]

28   In the price review context, we understand that the Commission is saying that a concern for regulatory predictability arises in relation to two issues in particular. Those issues are the suggestion that "re-useable assets" be valued at historic cost, and that an imprecise adjustment be made to the valuation of a fibre network to reflect performance differences.[13] Both would be a very significant departure from TSLRIC methodology. We discuss each below.

New Zealand fibre migration context

29   The New Zealand environment is unique and relevant to the Commission's task to make a determination that best meets the section 18 purpose statement.[14] For example, Plum Consulting has identified that the migration contexts in New Zealand and Europe are very different.[15]

30   Contrary to some submissions, there is evidence of positive externalities from the migration from copper to UFB services.

31   We agree with Vogelsang that migration from copper-based services to UFB services will generate positive externalities that are for the long-term benefit of end users. These can take the form of spill-over effects on other markets and the economy in general, and also of classic network externalities.[16]

32   It is well documented that migration to the UFB and RBI services is associated with very substantial positive social and economic benefits.

33   A study by Bell Labs, the research and innovation engine of Alcatel-Lucent, has quantified some of the social and economic impacts for New Zealand of UFB and RBI,

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[12] This is also highlighted by WIK. See: WIK-Consult, Response to Consultation (5 August 2014) at [41] and [42].

[13] Commerce Commission, Consultation Paper (9 July 2014) at [80].

[14] See: Chorus "Submission on UCLL Re-benchmarking Revised Draft Decision" (1 June 2012) at page 1, [4] – [7], [54] – [57] and Appendix B; Chorus "Cross-submission on the UCLL revised draft determination on the benchmarking review"" (15 June 2014) at [4], [18] and [86]; Chorus "Submission on UBA price Review" (24 August 2012) at [6] and [25] – [29]; Chorus "Submission on UBA price review draft determination" (1 February 2013) at [2] – [6] and Appendix E; and Chorus "Submission on UBA price review update paper (3 September 2013) at [9], [18] and [26] – [28].

[15] Plum Consulting "Is the European costing debate relevant to New Zealand?" (18 October 2011).

[16] Ingo Vogelsang "The effects of the UCLL contribution to the UBA aggregate on competition for the long-term benefit of end-users in New Zealand telecommunications markets" (2 July 2014) at [26].

and the high-speed broadband applications that these networks will enable. The study concludes that:[17]

33.1 The incremental growth in GDP stemming from the UFB and RBI network will be $5.5 billion over 20 years. This is significantly larger than the Government's $1.5 billion capital contribution; and

33.2 The economic benefits to New Zealand end users (so called consumer surplus) of the high-speed broadband applications considered (healthcare, education, business and agriculture sectors) will be about $32.8 billion over 20 years.

34 A study by the McKinsey Global Institute (**MGI**) on the internet's impact on growth, jobs and prosperity shows that the internet is contributing strongly to wealth.[18] The internet accounts for, on average, 3.4 percent of GDP in the 13 countries in the study.

35 That said, the internet accounts for only about 6 percent of GDP in advanced economies such as Sweden and the UK, leaving tremendous room for further internet development. Further, the study shows that in mature countries in the study, the internet accounted for 10 percent of GDP growth of the last 15 years. Over past 5 years the internet's contribution to GDP growth in these countries doubled to 21 percent, indicating its influence is only expanding.

36 MGI notes that the growth is a reflection of small and medium-enterprises receiving a performance boost through the internet. Further, MGI shows that the maturity of the internet correlates to rising living standards, is a powerful catalyst for job creation, drives economic modernisation and generates substantial consumer surplus. Importantly, MGI notes that only strong internet ecosystems can capture maximum value, and that one of the critical areas do achieve this is to develop infrastructure. All of this points to an increased migration to high-speed broadband having very substantial positive externalities.

37 Returning to Vogelsang – if an application of forward-looking TSLRIC results in a price increase for UCLL and UBA (which we expect it will), and this results in an increased rate of migration to UFB services, in our view the net effect will be an increase in competition for the long-term interests of end users.

38 CEG advises that in order to determine whether a price increase will promote competition for the long-term interests of end users it is necessary to understand the effect of the price rise on the conditions and environment for rivalry amongst firms, relative to the situation that would exist if the price did not increase. Not all of these market dynamics were considered by Vogelsang. When a broader range of market dynamics are considered CEG concludes that a higher UCLL price would likely improve

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[17] Alcatel-Lucent "Building the Benefits of Broadband – How New Zealand can increase the social & economic impacts of high-speed broadband" (2012) at page 1.

[18] McKinsey Global Institute "Internet matters: The Net's sweeting impact on growth, jobs, and prosperity" (May 2011) at pages 2 – 4.

the conditions and environment for competition amongst firms for the long-term interests of end users, consistent with the statutory objective.[19]

39   Given the conclusions drawn by CEG, and in light of market evidence outlined above, the positive externalities and migration efficiencies are likely to outweigh any potential short term negative effects for competition between RSPs on the copper network and other networks.

40   The Commission recognised these benefits as part of its section 18 considerations in its UBA IPP determination. It referred at length to its UBA Update paper of 13 August 2013, and in particular that "*increasing the UBA price above the median may lead to a greater migration to the UFB*".[20] The Commission took account of the short term increased prices to consumers and concluded that "*over time we would expect the value of the additional capabilities of fibre to grow and the benefits to end users to accrue, offsetting the welfare costs of accelerated migration*".[21]

41   Based on that analysis, the Commission concluded that:[22]

> our view remains that the negative impacts on competition of under-estimating the forward-looking costs are greater than over-estimating the forward-looking costs. This implies that we should err on the higher side to avoid the negative consequences of setting a price too low.

42   The Commission's conclusion was essentially unchallenged by any party on the appeal to the High Court, and was recorded without comment by the High Court.[23]

International developments

43   International TSLRIC experiences (Australia, the UK, Europe and elsewhere) are interesting for understanding an orthodox TSLRIC approach where there is a discretion but cannot change the task in front of the Commission required by the Act or the real world environment the Commission must consider in New Zealand.[24]

44   Recent developments in Europe and the European Commission are part of a move away from a forward-looking LRIC approach. As a choice in managing the migration to the NGN, the European Commission suggests taking a building blocks RAB approach whereby the initial RAB of the "re-used" assets is set by using an indexed historic cost less accumulated depreciation. After that the RAB is rolled forward. This may be a valid

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[19] CEG "Promoting competition: review of Vogelsang" (August 2014).

[20] Commerce Commission "Decision NZCC 20: Unbundled Bitstream Access Service Price Review" (5 November 2013) at [219] (**UBA IPP Decision**), quoting Commerce Commission "Unbundled Bitstream Access Service Price Review: Update on matters relevant to the UBA price review" (13 August 2013) at [120] (**UBA IPP Update Paper**).

[21] Commerce Commission, UBA IPP Decision (5 November 2013) at [220], quoting Commerce Commission, UBA IPP Update Paper (13 August 2013) at [141].

[22] Commerce Commission, UBA IPP Decision (5 November 2013) at [221].

[23] *Chorus Ltd v Commerce Commission and Ors* [2014] NZHC 690 at [81] – [82].

[24] The experiences in Australia, the UK and elsewhere are, however, relevant during the period that they were applying a forward-looking TSLRIC methodology.

policy response to the market context in Europe as it was in Australia where the response was to shift away from TSLRIC some time ago. However, these options are not available to the Commission under today's framework for these pricing processes.

45   Spark says that *"it would be difficult to justify a departure from the European Commission's recent Guidelines on model assumptions relating to the re-use of assets"*.[25] As discussed above, the European recommendation relates to a totally different regulatory process, and the HNE central to the forward-looking TSLRIC pricing methodology has no existing assets to reuse.

46   The Commission therefore must continue to ignore submissions that it follow international examples that do not use a forward-looking TSLRIC approach.

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[25] Telecom "UCLL and UBA FPP: consultation on regulatory framework and modelling approach" (6 August 2014) at [48].

MODELLING APPROACH

UCLL MEA

47 The Commission's task in this final pricing principle process is to determine the price for the UCLL, SLU and UBA STD services using a TSLRIC methodology.

48 The statutory requirements are clear. The definition of TSLRIC - "*the forward-looking costs over the long run of the total quantity of the facilities and functions that are directly attributable to, or reasonably identifiable as incremental to, the service".*

49 Use of an HNE construct is widely accepted, as is the concept of the HNE having a MEA.

Service to be modelled

50 A MEA, in order to comply with the Act, must be able to deliver the facilities and functions directly attributable to the STD service – in other words, the assets of the HNE need to be equivalent to support the full functionality of the STD services to be priced.

51 This is consistent with Network Strategies' reference to the Danish regulator's view that:[26]

> the MEA asset **must produce the stream of services produced by the existing asset** at lowest cost

52 Chorus has made extensive and consistent submissions to the Commission that a copper/FTTN MEA for the HNE will enable delivery of the STD services and TSLRIC prices with the least debate. Submitters have now also clearly confirmed that they accept a copper/FTTN MEA approach. They now conveniently request that if a copper/FTTN MEA is lowest cost, any other approach should be abandoned once they know that.

53 If the Commission chooses to engage in other modelling approaches without fixes, those will not deliver the full functionality of the STD services being priced. It is for these reasons (and the arguments discussed below) that there are now increased debates on the use of alternative technologies that will not deliver the STD services and upon which "pick and mix" approaches are proposed to find the lowest combination. This emphasises the well-established need to ensure a grounding in reality and to pay attention to what the Act requires. The prices from the TSLRIC modelling exercise will apply in a real world environment. TSLRIC is not about finding a hypothetical network and a hypothetical service. That will simply result in a hypothetical price.

54 The Commission has proposed to focus on "core functionality", words that are not present in the Act. The Commission applies its own definition of "core" as "the essential features of the relevant service". Other parties' submissions favour this approach: Wigley notes "*there is general agreement, other than Chorus, that the service definition*

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[26] Network Strategies "Key issues in modelling UBA and UCLL services" (6 August 2014) at page 8.

should be in terms of core functionality".[27] Spark supports an approach of "capturing the core capability of the regulated service".[28]

55   Wigley points out that a "*forward-looking perspective*" on technology choice enables any shortfall in service delivery to be justified on the basis that those services "*are services* based *on legacy technology*".[29] This circular argument means that any new technology can be adopted as the MEA, since any service shortfall compared with the STD specifications is by definition a shortcoming of the legacy network.

56   The Commission's focus on "core capability", supported by other submitters, distorts the clear requirements of the Act to identify the forward-looking costs of the existing STD services. While the Commission is yet to explain how it applies and defines "core functionality", it is being applied by submitters to mean the lowest cost technology to deliver telecommunications services generally (whether they bear any relation to the STD service or not).

57   If the Commission uses alternative modelling approaches, we have made extensive submissions on the deficiencies and, where possible, the "fixes" required to ensure the requirements of the Act are met.

Appropriate technology options

58   The Commission is not constrained by Chorus' existing network. The Commission is constrained by the requirements of the Act and by the relevant STD service it is pricing.[30]

59   The technology options capable of replicating the full functionality of the UCLL STD service are either:

   59.1   A copper/FTTN network; or

   59.2   A P2P FTTH network including the cost of fixes required to enable the FTTH network to offer the UCLL STD service. An FTTN model is also needed, as the Commission has proposed to determine the SLU price.

60   A GPON based point-to-multipoint network is not a viable MEA for the UCLL service. Nor is FWA.

61   In particular, FWA is not a layer 1 service and will not allow access seekers to develop competing services differentiated at layer 2, by, for example, differentiating broadband throughput capacity.

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[27] Wigley & Company Solicitors "Submission on consultation paper outlining Commission's proposed view on regulatory framework and modelling approach for UBA and UCLL" (August 2014) at [51].

[28] Telecom "UCLL and UBA FPP: consultation on regulatory framework and modelling approach" (6 August 2014) at [37].

[29] Wigley & Company Solicitors "Submission on consultation paper outlining Commission's proposed view on regulatory framework and modelling approach for UBA and UCLL" (August 2014) at [55].

[30] Chorus, August Submission (6 August 2014) at [231] – [237].

62   TERA acknowledges this noting that FWA is unable to be unbundled and does not allow differentiated services at layer 2 (since connectivity is "shared", not "dedicated"):[31]

> Technologies offering dedicated capacities for end-users are considered to be superior, all things being equal, to technologies offering shared capacities as they provide greater control of the physical medium **and allow physical unbundling**. It should be noted that the capacities of technologies using dedicated capacities are not directly comparable to the capacities of technologies using shared capacities. In the latter case, the actual per-user capacity depends on the number of users connected. (emphasis added)

63   Of note is that submissions from other parties have not addressed the functionality shortfalls of either GPON or FWA.[32]

64   There is no regulatory precedent for cost modelling FWA to price either layer 1 or layer 2 services except for very small proportions of the network, at the margins, which reflect real world deployment.

65   Network Strategies uses Sweden as a case study but fails to note that FWA is only used by the Swedish regulator to cost voice, not broadband, services at the margins of the network, as outlined in our previous submission:[33]

> Wireless technology (which is not limited to FWA in the model) is used in the model as a replacement for the telephone service (in the wholesale case, interconnection) but not for LLUB or bitsteam. Therefore, no costs for wireless infrastructure are allocated to the cost for copper access/fibre access. (translated)

66   The Swedish regulator specifically identifies that FWA cannot offer broadband services equivalent to a fixed line network:[34]

> The decision as to whether or not to use FWA is not purely based on cost as the use of FWA equipment has a significant effect on the services that can be provided to those customers.

67   In addition, TERA notes:[35]

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[31] TERA Consultants "TSLRIC price review determination for the Unbundled Copper Local Loop and Unbundled Bitstream Access services: Modern Equivalent Assets and relevant scenarios" (July 2014) at page 23.

[32] Chorus, August Submission (6 August 2014) at [223] – [228] and [318] – [335].

[33] PTS "PTS konsultationsvar på samråd av Draft Model Reference Paper (rev c) samt Utkast till modellreferensdokument (rev c) (MRP)" (7 May 2010) at page 27, available at: http://www.pts.se/upload/Ovrigt/Tele/Bransch/Kalkylarbete%20fasta%20n%C3%A4tet/revidering%202011/10-420-konsultationssvar-MRP-2010.pdf (in Swedish).

[34] Swedish Post and Telecom Authority "PTS consultation response on draft hybrid model and pricing methodology" (24 April 2008) at page 16, available at: http://www.pts.se/upload/Ovrigt/Tele/Prisreglering/pts-consultation-response-draft-hybrid-080424.pdf.

[35] TERA Consultants "TSLRIC price review determination for the Unbundled Copper Local Loop and Unbundled Bitstream Access services: Modern Equivalent Assets and relevant scenarios" (July 2014) at page 38.

> PTS also considers wireless infrastructure to be the MEA to replace copper in low density areas where only voice or low capacity leased lines are provided and where high speed services are unlikely to be offered in the foreseeable future.

68   FWA doesn't even meet the basic functions of the STD service and is not seen as a substitute for UCLL in the market today. To meet the specifications used by unbundlers who purchase layer 1 services, substantial additional cost would need to be incurred and built into the model. The problems with this are demonstrated below.

Costing a viable FWA network

69   Putting to one side the fact that FWA cannot provide the UCLL STD service, to be any kind of viable service (although not the regulated UCLL service), the FWA network would need to deliver voice and broadband services to a performance at least comparable to that provided by the current UCLL network, and be capable of delivering services to those standards to every end user in the area in question.

70   This is significantly different to how FWA is used in practice. FWA is used to serve customers at the fringe of the network who accept that their location potentially means a lesser standard of service. And it is used in circumstances where it is understood that not necessarily all end users will have coverage.

71   To use FWA to deliver a service with performance comparable to UCLL to all end users in a region would require significantly more network assets than are commonly used in a FWA network. In particular, the FWA network would require many base stations in each area (with overlapping coverage at many end user premises, to be sure to cover a very high percentage) and very high design specifications. Replicating the ability of RSPs to vary throughput would also drive significant costs, and high operating expenses and other cost drivers must also be taken into account.[36]

72   Analysys Mason explains:[37]

> wireless networks are considerably more expensive to build if trying to reach 100% coverage in a given area and if designing the network to provide a high throughput.

73   Therefore:[38]

> If wireless can meet the specification (and we say that it cannot meet the UCLL specification at all, and that in addition to being incompatible with the FPP it is very unlikely to be able to provide the level of coverage and throughput required for UBA at an economic price) then it would be consistent to allow the choice of technology deployed to be made on the basis of the lowest cost solution in each area.

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[36] Chorus, August Submission (6 August 2014) at [336] – [361].

[37] Analysys Mason "Response to submissions on Commission consultation on regulatory framework and modelling approach for UCLL and UBA" (15 August 2014) at [1.3] (**Response to Submissions**).

[38] Analysys Mason, Response to Submissions (15 August 2014) at [1.2].

74   Analysys Mason also advises that even with extra infrastructure, a FWA network may not reach all end users and even more expensive solutions will be required for those end users.[39]

75   The Swedish regulator supports this point:[40]

> There is no guarantee that direct line-of-sight links will be available to feed the FWA nodes and thus multiple Microwave links could be necessary in many cases. The on-going operating costs for Microwave will also tend to be higher than for direct fibre links and the lifetime of the equipment will be lower resulting in higher annualised capex charges for equivalent levels of investment.

76   Network Strategies observes that Sweden only modelled FWA in Geotype 5 ("Sparse"), and could have lowered costs, but did not, by also modelling FWA in parts of Geotype 4 ("Rural B").[41]

77   Sweden only modelled FWA for the 2% of end users who were not connected to the fixed line network (which, in our case, would be outside the geographic scope of the UCLL and SLU STD services).[42]

78   So, Sweden models FWA for voice only, and only where the local equivalents to UBA and UCLL are not provided. This is similar to the use of "country sets" or the ultra-rural radio solution in Spain discussed by Network Strategies.

79   We have also explained that there are additional inherent costs in providing a seamless product offering across multiple technologies.[43]

80   Chorus' experience is that FWA becomes expensive when connecting all end users in a given coverage area. For this reason Chorus has used CMAR at the edges of the network, which uses wireless links from exchanges to cabinets, but copper-to-the-home is the final connection technology, as it gives the required certainty of service.[44]

81   FWA has been mooted by submitters for Zone 3. We would be surprised if FWA was lowest cost in Zone 3 given that this Zone comprises smaller rural communities which are more or less indistinguishable from suburban areas of large cities in terms of population density. They are, in effect, remote suburbs, whose higher cost to serve is the result of higher backhaul costs, not higher distribution network costs. Serving these

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[39] Analysys Mason, Response to Submissions (15 August 2014) at [1.3.1].

[40] Swedish Post and Telecom Authority "PTS consultation response on draft hybrid model and pricing methodology" (24 April 2008) at page 16, available at: http://www.pts.se/upload/Ovrigt/Tele/Prisreglering/pts-consultation-response-draft-hybrid-080424.pdf.

[41] Network Strategies "Key issues in modelling UBA and UCLL services" (6 August 2014) at page 26.

[42] Chorus, August Submission (6 August 2014) at [365] – [366].

[43] Chorus "Cross-Submission on UCLL and UBA FPP further consultation paper" (30 April 2014) at [2.2] and [20] and Chorus, August Submission (6 August 2014) at [261].

[44] Chorus, August Submission (6 August 2014) at [345].

areas requires construction of a backhaul network regardless of the distribution technology used.

82   Evidence in overseas markets also sees fixed wireless largely confined to areas with sparse population densities. Network Strategies reports that in Sweden the regulator now considers FWA to be a partial solution for a geographic zone that accounts for 2% of all lines.

Use of a copper/FTTN model

83   The Commission is right to model a copper/FTTN model in parallel to FTTH.

84   As noted earlier, other submitters now accept a copper MEA approach and have sought to apply it - if it is the lowest cost. Analysys Mason has advised on this and it has been consistently put forward as the most complete and least debated approach.

85   Analysys Mason supports this approach,[45] as do RSPs:

    85.1   Vodafone states:[46]

            the Commission should be explicit that it will adopt the least cost solution (which is required under an orthodox approach to TSLRIC pricing)

    85.2   Spark states:[47]

            Model copper, fibre and fixed wireless technologies in order to identify the lowest cost technology to provide the service

86   TERA also appears to support this approach.[48]

One technology focus

87   The Commission should be mindful not to model an HNE that switches between a FTTH deployment and a copper/FTTN network deployment for different regions or parts of the modelled network.

88   An HNE would not take this approach. An HNE would select the most cost effective MEA and benefit from the consistent service offerings and economies of scale generated by having only one primary network technology. For example:

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[45] Analysys Mason "Response to Commission consultation on regulatory framework and modelling approach for UCLL and UBA" (6 August 2014) at [1.3].

[46] Vodafone "Comments on consultation paper outlining Commission's proposed view on regulatory framework and modelling approach for UBA and UCLL services" (6 August 2014) at [G7.1(a)].

[47] Telecom "UCLL and UBA FPP: consultation on regulatory framework and modelling approach" (6 August 2014) at [37].

[48] TERA "TSLRIC price review determination for the Unbundled Copper Local Loop and Unbundled Bitstream Access services: Modern Equivalent Assets and relevant scenarios" (July 2014) at page 47.

88.1 At the network level, an HNE would use one primary technology in order to simplify its systems and expertise; and

88.2 At the marketing level, an HNE would seek to make the most of a mass market offering, allowing for simpler service offerings to RSPs (which would also benefit RSPs' offerings to end users).

UBA MEA

89 When it comes to identifying the HNE in the UBA market, the Commission is right to assume Chorus' existing copper services as inputs to the UBA MEA. The UBA "additional costs" are those costs which are incurred to offer the UBA service using existing inputs, such as transmission technology. Those additional costs, but not the copper inputs, should be calculated using a MEA.

90 This will set the right build/buy incentives for each service. For the build/buy decision in UBA to be meaningful, the UBA cost calculation can only start with the copper network that the additional costs are added to. If the calculation starts with a network that is different to the existing network, the build/buy calculation cannot reflect the reality the HNE unbundler is faced with.

91 We therefore favour the Commission's approach and disagree with Vodafone's suggestion that the MEA should be FTTH/FWA for both UCLL and UBA (in addition to the limitations of FWA discussed above). WIK also states that the HNE providing both UCLL and UBA would only build one network because the MEA can support both services. Use of a copper/FTTN MEA would support this approach. However the HNE analysis must be capable of being carried out for each service separately.

92 This approach is also consistent with the requirement that the UBA and UCLL processes are separate and should not affect one another. We have previously submitted to this effect,[49] and Dr Every-Palmer agrees:[50]

> The Act envisages that some of the designated access services may be subject to FPP prices while others will remain subject to IPP prices. This suggests that… the MEA and FPP price that apply for a particular service should not be affected by the time at which the application was made or what other FPP applications were live at the same time.

Valuation of assets

93 The Act requires the use of a forward-looking TSLRIC approach. That requires a replacement cost approach – ORC. This is not an area of discretion. It is a legislated pricing principle from which the Commission cannot depart. It is what is reasonably expected when referencing earlier Commission papers and is well evidenced in overseas practice (even where other countries, cf: New Zealand, have discretion).

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[49] Chorus "Submission on further consultation paper for UCLL and UBA FPPs" (11 April 2014) at [132] – [137].

[50] James Every-Palmer "FPP determination: Issues re service description and the modern equivalent asset" (12 March 2014) at [38].

94   We agree with the Commission's decision to reject suggestions that it value so-called "re-usable" assets at historic cost. This would be a radical departure from a forward-looking TSLRIC approach and also would be inconsistent with regulatory predictability.

95   The conventional application of forward-looking TSLRIC involves an HNE providing the relevant service using modern equivalent assets. Parliament chose this pricing model because it was well understood. Submitters agree with the use of the HNE construct.

96   Departing from an ORC approach for "re-usable" assets would also require an incoherent and internally inconsistent HNE to be constructed. The re-usable assets argument involves a world where an HNE replaces Chorus but nevertheless uses spare capacity in some of Chorus' assets but not others. WIK suggests that, not only can existing ducts be re-used, they can also be optimised to follow different routes to the actual existing ducts.[51]

97   This incoherency is highlighted by Network Strategies who observes in the context of asset sharing:[52]

> the hypothetical efficient operator to be modelled is not competing with Chorus – it is a substitute for Chorus, and thus the issue of sharing with Chorus may be largely irrelevant

98   Illustrating the tenuous nature of the proposition further, the Commission would have to identify the supposedly "perpetual" assets in the network and pretend that they do not ever need to be replaced and are to be re-used. As a matter of fact, assets such as ducts, trenches and poles do have finite physical lives. They may also have no spare capacity or require expansion or upgrading. Assuming they are "perpetual" assumes away all of these investment requirements and is incompatible with TSLRIC.[53]

99   CEG has considered WIK's proposal to change the treatment of "re-usable" assets or non-replicable assets. CEG advises that there are serious logical and economic flaws with departing from an ORC approach to "re-usable" assets, which would lead to under-recovery of efficient costs.[54] The WIK approach involves identifying the most efficient network technology on a greenfields basis, but then costing the deployment assuming it can leverage off existing assets. Further, there is no logical basis on which to make a distinction between the assets that are assumed to be re-used by the HNE and those that are not.

100   As logical difficulties multiply, regulatory predictability and investor confidence will correspondingly reduce and the risks of regulatory error in finding a price in New Zealand are significantly increased. CEG explains that at its heart, this proposal results in an approach to changes in technology that leaves the investor with under-recovery of efficient investments.

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[51] WIK-Consult, Response to Consultation (5 August 2014) at [28].

[52] Network Strategies "Key issues in modelling UBA and UCLL services" (6 August 2014) at [4.3].

[53] See also: Analysys Mason, Response to Submissions (15 August 2014) at [1.10].

[54] CEG "Reusable assets and forward-looking cost" (August 2014).

101   WIK's approach is a departure from the foundations for TSLRIC of setting a build or buy price that facilitates the long-term promotion of competition and this departure only increases the lack of predictability.[55] Spark's proposal to apply some other standard seeks to change the concept of TSLRIC established in the Act and goes to predictability and reasonable expectations of an orthodox application.

Scorched node network design

102   A scorched node approach is appropriate and conventional in TSLRIC modelling, and expected by the industry (in particular due to the Commission's signalling in its TSLRIC principles papers in 2002 and 2004).

103   WIK argues for what it labels a "modified scorched node" approach:[56]

> WIK proposes a modified scorched node approach that is capable of identifying efficient costs in that it should avoid accepting too closely the existing scorched node structure, that due to historic growth has resulted, from today's point of view in inefficiencies.

104   WIK also asserts that modified scorched node is "best international regulatory practice".[57] As Analysys Mason identifies, while modified scorched node is used internationally, it does not conventionally include modifying the locations of a significant number of nodes as WIK suggests:[58]

> …the "modification" in "Modified scorched node" usually refers only to the changing of the function of the node (e.g. a concentrator could be deployed rather than a switch).

And:[59]

> By seeking to significantly modify the number and location of ODFs (and to redefine the areas served) WIK are proposing not a modified scorched node but a scorched earth approach. By comparison, other regulators have generally retained the vast majority of MDF sites and their serving areas in their models.

105   This is supported by the Irish regulator, ComReg:[60]

> The modified scorched node approach is thus a hybrid approach between a scorched earth and scorched node approach. It takes the existing node location as given (and thus recognises the

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[55] WIK highlights the importance of network competition at WIK-Consult, Response to Consultation (5 August 2014) at [41] and [42].

[56] WIK-Consult "Submission on consultation paper" (5 August 2014) at [5].

[57] WIK-Consult "Submission on consultation paper" (5 August 2014) at [5].

[58] Analysys Mason, Response to Submissions (15 August 2014) at [1.4].

[59] Analysys Mason, Response to Submissions (15 August 2014) at [1.4].

[60] Office of the Director of Telecommunications Regulation "Consultation Paper: The Development of Long Run Incremental Costing for Interconnection" (March 1999) at page 11, available at: http://www.comreg.ie/_fileupload/publications/odtr9917.pdf.

historical evolution of the network), but optimises the equipment at the nodes, as well as optimising the transmission equipment connecting these nodes.

106   The Commission should not "modify" in such a way as to avoid the existing scorched node structure. As noted by Analysys Mason, retaining the locations of MDF sites and cabinets ensures the retention of points of interconnection being purchased by RSPs:[61]

> …retaining the locations of both the MDF sites and the cabinets can be justified as retaining the points of interconnection. Allowing the modelled network to have fewer (or more) MDFs is to change the boundary between the access network and the core; as a result the nature of what is being purchased by unbundlers would also be changed (e.g. the "last mile" would become the "last half mile").

107   Retaining the location of MDF sites and cabinets is also a practical approach which will result in a cost model which is grounded in New Zealand circumstances, as well as being consistent with international regulatory precedent.

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[61] Analysys Mason, Response to Submissions (15 August 2014) at [1.5].

KEY INPUTS TO TSLRIC MODEL

Locating the HNE in the real world

108 The Commission should ensure that its TSLRIC modelling approach is grounded in reality. The HNE is entering New Zealand's markets. Ensuring that the modelling approach reflects local conditions and constraints is one of the key concerns for overseas regulators undertaking similar exercises.

109 In general, we think that the Commission has kept the industry discussion focused on the correct long-term objectives and our market. However, we reiterate the views expressed in our submission that in order to ground the HNE in the real world, the Commission should:

109.1 Take into account all available information about the real world constraints that the HNE would face. Where Chorus is shown to be constrained by real world, externally imposed restrictions or costs, the HNE should be assumed to face those same external constraints or the case made as to why not;[62] and

109.2 Be sure that it is asking of the HNE a realistic and attainable standard of efficiency when making decisions about model inputs.[63]

Cost of trenching

110 Chorus agrees with Network Strategies that the Commission should use all information available to it about trenching conditions and costs, including Chorus and LFC UFB trenching data, Landcare Research data, and the data developed for TSO modelling on trenching conditions (which we believe still accurately reflects real world New Zealand trenching conditions).

111 All relevant datasets in the Commission's model (trenching conditions, trenching rates and reinstatement costs) will benefit from a more granular analysis where that can be done. The use of more disaggregated and detailed data will result in a more accurate reflection of the real-world costs that an HNE would face.

112 Chorus suggests that the Commission uses the recent trenching data from Chorus and LFCs in the UFB process in the first instance, where that data is available for the relevant areas. This data is available at a detailed geographical level. Given that it is real world data from a large scale fibre rollout at the current time, there would be significant benefit in the use of its data.

113 For remaining areas and as a cross-check, the Commission should consider:

113.1 Landcare Research data on trenching conditions, as suggested by Network Strategies. This data does not cover all of New Zealand so it may be best used where UFB data is not available and as a check against the existing data; and

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[62] Chorus, August Submission (6 August 2014) at [46] – [51].

[63] Chorus, August Submission (6 August 2014) at [47].

113.2 TSO data, which has been reviewed by two independent consultants employed by the Commission and used for eight TSO determinations to date. It provides robust and comprehensive data on a nationwide scale.

114 We note, for comparison, that our UFB data has the advantage of incorporating many geographically sensitive cost parameters that have not been assimilated into the Landcare Research data, such as reinstatement costs (which vary significantly with the surface), and costs associated with traffic management and engaging arborists.

115 Chorus' primary concern is the extent of any additional benefit, given the time and cost involved, in analysing trenching costs under a microscope. The Commission needs to balance the incremental value in accuracy, and therefore degree of analysis, against the importance of meeting the existing process timeframes.

Depreciation

116 WIK, Spark, Vodafone and Chorus all agree that a tilted annuity approach to depreciation that is adjusted for price and demand changes is appropriate.[64] An adjusted tilted annuity is a preferable approach to tilted annuity because it ensures that prices are smooth, avoiding a price spiral and enabling recovery of the modelled efficient costs over time.

Tax adjustments

117 WIK and Vodafone's responses to the Commission's proposals on modelling the cost of tax appear to be based on the incorrect belief that a simple transformation of the WACC can be used to account for both:

117.1 The fact that equity returns are taxed but debt costs are tax deductible; and

117.2 The fact that tax depreciation differs from the actual rate at which capital is returned (depreciated) within the tilted annuity.

118 WIK and Vodafone are correct that the WACC can be adjusted to take account of the first fact. Indeed, this is precisely what the Commission appears to be suggesting when it proposes the use of a 'post tax' WACC – although the Commission does not define this term. However, WIK and Vodafone are incorrect in relation to the second dot point. Differences between the rate of tax depreciation and regulatory depreciation (return of capital) must be accounted for separately – which is what the Commission's formula attempts to do. We clarify the Commission's proposal in more detail at Appendix 1.

119 We agree with Spark that the Commission's modelling approach involves simplifications that could be addressed. In particular, and as noted in our submission, the most

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[64] Telecom "UCLL and UBA FPP: Consultation on regulatory framework and modelling approach" (6 August 2014) at [141], Vodafone at [G8], Chorus, August Submission (6 August 2014) at [125]; and WIK-Consult, Response to Consultation (5 August 2014) at [59].

significant of these is that the formula assumes a 100% certainty that the modelled UCLL provider will always be in a tax payable position (i.e. will never make a tax loss).[65]

Asset sharing

120 As we have discussed, it is important that the Commission's HNE be grounded in real world New Zealand conditions. Since the HNE replaces Chorus in offering to the relevant services, the HNE's experience of the availability of shared assets will be similar to Chorus'. Our experience is that significant levels of asset sharing are not feasible.

121 Chorus agrees that an HNE should be modelled as sharing with third party networks, so long as the proposed arrangements are grounded in reality and supported by evidence.[66] To that end, we agree with the view of Network Strategies that: [67]

> Key considerations for infrastructure sharing in New Zealand are the terms of the Resource Management Act (1991) which require compliance with local district plans and hence local council consent.

122 Chorus acknowledges that there is precedent for the inclusion of asset sharing in other jurisdictions.[68] However, the Commission should exercise caution in applying the detailed methodology adopted by regulatory bodies in those jurisdictions. We agree with Network Strategies that the Commission should be guided by the local constraints and incentives faced by an HNE in New Zealand. Incumbent service providers in other jurisdictions face different rules, regulations and incentives to share assets.[69]

123 Chorus also agrees with the view of Network Strategies that the HNE can only share assets with third party services that are not already considered to be part of its demand:[70]

> It should be noted however that the hypothetical efficient operator to be modelled is not competing with Chorus – it is a substitute for Chorus, and this issue of sharing with Chorus may be largely irrelevant.

124 We agree that the model must not assume that the HNE is able to share Chorus' copper assets.

125 Equally, we do not think that the HNE can be assumed to have pre-existing assets that could be used for network deployment, such as electricity service infrastructure. The HNE is new. It would be inconsistent with the concept of an HNE to assume that it already has a network.

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[65] Chorus, August Submission (6 August 2014) at [141] – [144].

[66] See: Chorus, August Submission (6 August 2014) at [107].

[67] Network Strategies "Key issues in modelling UBA and UCLL services" (6 August 2014) at page 38.

[68] See: Network Strategies "Key issues in modelling UBA and UCLL services" (6 August 2014) at pages 36 – 37.

[69] Chorus, August Submission (6 August 2014) at [108].

[70] Network Strategies "Key issues in modelling UBA and UCLL services" (6 August 2014) at page 38.

126   Network Strategies observes that "*utilising its existing electricity service infrastructure Northpower saved more than 50% of costs.*"[71] When assessing what to make of Northpower's experience the Commission should keep in mind the point made above: when applying TSLRIC it should not model an HNE with existing infrastructure nor take into account the cost savings that such a firm can achieve.

127   In practice a new entrant will have to negotiate access to electricity poles and other usable infrastructure with third party providers. This underscores the importance of engaging with the real world conditions faced by an HNE across the country. We have provided evidence on the facts on the ground.[72] High level assumptions about what is possible nationally that are not anchored in facts or derive from firms that already have networks will give a misleading picture of efficient costs.

Common costs

128   Chorus agrees with the view of WIK that the Shapley-Shubik method is not common practice amongst regulatory authorities in other jurisdictions and should not be used to determine network costs that are not directly attributable to a service.[73] Capacity-based methods are more transparent and faster to implement. For non-network costs, Chorus agrees that an EPMU methodology is common practice in bottom-up LRIC models and should be adopted.[74]

129   Common costs (particularly trench and duct costs) in UFB areas will need to be allocated between copper and fibre services where sharing would be feasible (on the basis that UFB services should not be included in the demand for the modelled UCLL operator). This cost should be allocated based on the number of subscribers on copper vs fibre in each area. This method will result in prices which vary smoothly over time and costs that vary in proportion to the customer base on each and so support an efficient migration.[75]

130   This approach to allocation of cost to the upgraded UFB infrastructure is only appropriate if UFB demand is excluded from demand for the modelled services. Using a per-subscriber cost allocation method will smooth the price effects and facilitate efficient migration to UFB. As Analysys Mason observes, WIK also puts forward a similar approach.[76]

Demand

131   The approach to demand for the UCLL service proposed by the Commission is to calculate the forward-looking cost of that service, and to divide the cost across the number of fixed line customers, some of whom will be on other operators' networks.

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[71] Network Strategies "Key issues in modelling UBA and UCLL services" (6 August 2014) at page 38.

[72] Chorus, August Submission (6 August 2014) at Appendix 3 generally.

[73] WIK-Consult, Response to Consultation (5 August 2014) at [86].

[74] WIK-Consult, Response to Consultation (5 August 2014) at [80].

[75] Chorus, August Submission (6 August 2014) at [114].

[76] Analysys Mason, Response to Submissions (15 August 2014) at [1.7].

While this approach is supported by the other submitters, it would not allow the HNE to recover its efficient forward-looking costs. For if the UCLL model is to estimate the efficient costs of providing the UCLL service, it must model a network to all of the places that Chorus is currently required to provide service and spread the costs of that network over the forecast demand on the copper network.

The size of the UCLL network

132   The network should be dimensioned with sufficient capacity to enable the operator to serve all lines that are capable of supplying the UCLL STD service.[77] This may well be different to the number of lines bearing the cost, which will be the subset of those lines that are active customers.

133   This is consistent with regulatory precedent. In the Danish model, the network is dimensioned over active and inactive lines but recovered over active lines only:[78]

> Rolling out a network only by connecting active customers would be highly inefficient in the long run. As a consequence, access networks in the LRAIC model should be dimensioned by connecting all premises of the area they cover.

> However, costs should be recovered over the subset of connected locations assumed to have an active subscription.

> …

> Criterion BU 23: The cost of passing all the premises within an area should be modelled. Corresponding costs should be recovered over the subset of connected locations assumed to have an active subscription.

The demand that bears the cost of the network

134   The cost of the UCLL network should be borne by the forecast demand on the copper network (i.e. active copper customers). In other words, the prices should be set so revenue from forecasted sales to customers is sufficient to cover the forecasted efficient costs. Any other approach would result in Chorus not having an expectation of recovering the efficient cost calculated by the Commission.

135   For this reason, the approach suggested by WIK, that there should be no difference in principle between the number of lines that are used in the dimensioning of the model and the number of lines which bear the cost,[79] would either result in a network that falls short of Chorus' STD obligations or under-recovery of efficient cost.

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[77] Chorus "Submission on UCLL FPP process and issues paper" (14 February 2014) at [81] – [82].

[78] TERA Consultants "Modification and development of the LRAIC model for fixed networks 2012-2014 in Denmark: Draft Model Reference Paper" (May 2013) at page 33, available at: http://erhvervsstyrelsen.dk/file/370079/metodemoede.pdf.

[79] WIK-Consult, Response to Consultation (5 August 2014) at [57].

136   WIK also suggests that the demand should include customers who have migrated to other operators.[80] However if the HNE is defined as including all demand on all networks then over time the model becomes less and less useful for determining appropriate prices for the relevant services. As more customers migrate to other LFCs, these prices, being based on the average of all networks, would become less and less reflective of costs in the remaining areas where Chorus provides services.

137   Further, under the Commission's proposal, the costs would be based on an operator rather larger than Chorus, with economies of scale and possibly scope that no operator in New Zealand (including Chorus) could match. That would lead to under-recovery, regardless of how efficient Chorus was. Hence the approach suggested by WIK of modelling the costs of customers of all networks, whether Chorus or not, would not only become increasingly less reflective of any one operators costs, but also not allow any operator full recovery of their costs. Standing back, this approach to demand would be a material departure from the TSLRIC methodology, raising the same regulatory predictability and credibility concerns as the re-usable assets and performance adjustment proposals.

138   When thinking about the appropriate size of the HNE demand to be modelled, the Commission needs to also apply its decisions consistently throughout the modelling, and in particular to the sharing assumptions. Here the Commission has two high level options. Both start with the same model – a network dimensioned and costed to meet all lines that are capable of supplying the UCLL STD service. They differ in how the costs are allocated and the basis for the per line cost.

139   The first is to separate out the cost of the copper services only, by allowing for the sharing with other services, and then calculate the per line cost based on the demand for copper services. That is the approach we recommend.

140   The second approach is to simply take the total forecast efficient cost and calculate a per line cost based on the total forecast Chorus services (including both copper and UFB).

141   We think that both approaches should, if calculated on a consistent basis, result in similar costs per line. The latter approach would reduce concerns that other parties have about the potential over time for the first approach to result in high per line costs (although these concerns will actually be met by using the consistent sharing assumptions discussed above, and a demand-adjusted tilted annuity). However, if the Commission does apply the second approach, it is critical that it applies it on a consistent basis. As noted above, it would systematically underestimate the efficient cost to first allocate costs between copper and UFB services, and then spread the costs of the copper services over the combined demand for copper and UFB services.

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[80] WIK-Consult, Response to Consultation (5 August 2014) at [55].

PROPOSAL FOR "AGGREGATION" OF LAYER 1 SERVICES

142   The Act requires the Commission set a TSLRIC price for each of the UCLL, SLU and UBA STD services. WIK appears to be proposing a similar solution to the proposal in our submission to ensure that the statutory requirements are met.

143   We agree with WIK that if a FTTH model is used to measure the TSLRIC of the UCLL STD service, then the TSLRIC of the SLU STD service could be derived by applying the ratios from the FTTN model. This addresses the issue that a FTTH model will not independently measure the TSLRIC of the SLU STD service, [81] but it does not meet the Consultation Paper's objective of access cost equivalence for RSPs from the exchange and the cabinet for the reasons set out in our submission.

144   In particular, at paragraph 49 of its report, WIK proposes a method for calculating SLU costs that uses both the FTTH and FTTN models. We agree with this proposal as expressed in the equation at the end of that paragraph, provided that the cabinets in the Commission's FTTN model are on the same lines and in the same locations as they are in Chorus' network (otherwise the proportions will not give an accurate estimate of the cost of SLU).[82] The costs of NCUCLL and SLU should be set by reference to the full network UCLL cost using the ratios from the FTTN model.

145   This method solves the problem that a FTTH model will not itself produce a TSLRIC estimate for the SLU and UCLL STD services and it avoids the need to calculate a SLU backhaul cost.[83] This is the closest approach to setting a TSLRIC price without using an FTTN model directly to set the price.

146   One implication of this method is that there will not be the same total access price for RSPs at the exchange and cabinet except by chance. However, given the limited unbundling likely to occur at the cabinet, and the fact that access prices are only one part of the comparative position of RSPs at the exchange and the cabinet, we do not see this as a significant issue.

147   When determining the ratios in the FTTN model for the purposes of this calculation, the Commission should reflect the current level of cabinetisation. The question of optimising the level of cabinetisation, raised by WIK,[84] raises issues that go beyond this price review process. Optimum levels of cabinetisation depend almost entirely on what level of broadband line speed performance is expected on any line. That in turn will depend on assumptions around ADSL and VDSL deployment. These in turn raise issues

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[81] Chorus, August Submission (5 August 2014) at [147].

[82] We do so on the assumption that the expressions "FTTH MEA model based UCLL costs" and "FTTN MEA model based UCLL costs" are referring to the costs of the relevant full network and not the costs of the NCUCLL portion. The costs of NCUCLL and SLU are set by reference to the full network UCLL cost using the ratios from the FTTN model.

[83] As we observed in our 6 August submission at paragraph 147, the model not itself producing a TSLRIC estimate for SLU and UCLL STD services is the primary difficulty with the implementation proposal in the Consultation Paper.

[84] WIK-Consult, Response to Consultation (5 August 2014) at [51].

around marketing, customer expectation, take-up and costs of electronics. The result would be a model that assumed end users could be serviced by UCLL or SLU when they in fact cannot. We consider the Commission should use the level of cabinetisation as exists in Chorus' current network.

TIMING DECISIONS

Regulatory period and backdating

148   We refer the Commission to our previous submissions.

Appendices

APPENDIX 1: DISCUSSION OF TAX ADJUSTMENTS

149   The Commission's proposal is to make a single proportional adjustment to the tilted annuity for each asset. The formula used to determine the value of this adjustment is provided at paragraph 326. It is as follows:

$$\text{Adjustment} = \frac{\left(1 - \frac{t*d}{d + WACC_{nominal}}\right)}{1 - t}; \text{ where:}$$

- t is the *corporate tax rate;*

- *d is the diminishing tax depreciation rate for the asset in question;*

- $WACC_{nominal}$ *is a 'post tax' nominal WACC – which appears to implicitly be calculat*ed as follows:

  ○ $WACC_{nominal} = R_e * (1 - G) + R_d * (1 - t) * (G);$

  ○ $R_e \ and \ R_d$ are the cost of equity and debt respectively;

  ○ G is debt as a proportion of total assets (gearing); and

  ○ R_d is multiplied by (1-t) in order to account for the tax deductibility of interest.

150   The derivation of this formula is not provided by the Commission which is perhaps why WIK and Vodafone appear not to understand it. However, it is useful to note that dividing a post-tax WACC of the above form by (1-t), which the Commission formula does, gives the same formula as WIK proposes in equation 13 reproduced above. In addition, note that when diminishing tax depreciation is assumed (as the Commission does assume) it is the case that:

$$\frac{d}{d + WACC_{nominal}} = \text{NPV of tax depreciation (deductions on \$1 of investment).}$$

151   Inserting this into the Commission's formula gives:

Adjustment = 1/(1-t) – (NPV of tax depreciation)*t/(1-t)

152   This has the following interpretation:

152.1 The first term can be thought of as scaling up the annuity (calculated using a post-tax WACC) by a factor of (1-t). Just as WIK suggest is appropriate, this treats only equity as subject to tax.[85] However, if this was the only adjustment made to the annuity then it would also be implicitly assuming there was no tax

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[85] Noting that in the post-tax WACC formula debt costs have already been scaled down by (1-t).

depreciation and, therefore, both return on equity and return of capital would be treated as taxable income.[86]

152.2 The second term ((NPV of depreciation)*t/(1-t)) simply attempts to remove the value of tax deductibility of depreciation from the first term.

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[86] The first term (1/(1-t)) simply states that if $1 is invested in an asset but if the return of that $1 (in NPV terms) attracts tax at the marginal tax rate (t) the NPV of compensation before tax needs to be $1/(1-t) in order to deliver an after tax return of $1 (i.e., $1/(1-t) −t*$1/(1-t)=$1).