



UBA and UCLL FPP pricing review draft decision

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Executive Summary

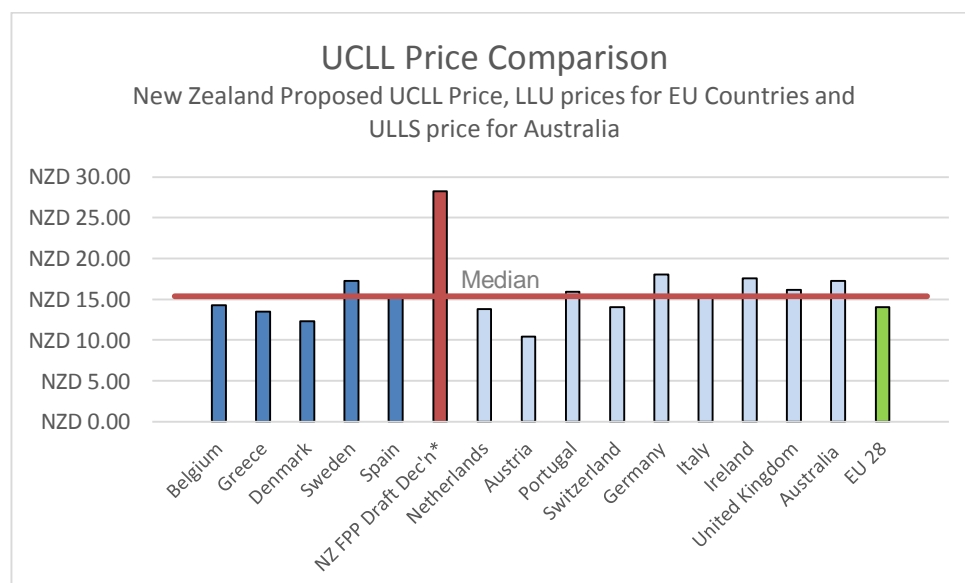
The purpose of our Act is to deliver the benefits of competition to end-users in markets where there is no competition. The Commission’s primary duty is to protect end-users against inefficiently high prices

1. This pricing review process is of significant importance for the industry and end-users. UCLL and UBA prices are the two most important inputs into retail prices for voice and broadband services.
2. Regulation of these services, and of their prices is perhaps the single most important task for the Commission under the Telecommunications Act 2001 (**Act**).
3. The purpose of the Act is to deliver, through regulation, the long terms benefits that competition and competitive markets would otherwise be expected to deliver to end users of telecommunications services in New Zealand – to consumers.
4. New Zealand consumers are harmed by high, static prices. They are harmed relative to their peers in the OECD and their major trading partners when the prices that underpin their productive services are the highest among those partners.
5. Among consumers, lower socio-economic groups are the most harmed. Just as affordable access to broadband has the power to improve the incomes, educational attainment and productivity of these groups most, any decrease in affordability is likely to result most directly in their exclusion.
6. A decision to increase the costs of broadband and voice services, then, must be taken cautiously and with firm evidence of countervailing and superior benefits.

The draft UCLL price is indefensibly high, not for any New Zealand-specific reasons, but because of Commission decisions to include inefficient costs within its models

7. The Commission’s draft UCLL price is 80% higher than the median price for the same service in the countries we compare ourselves against. It is 60% higher than the next most expensive country. That the price of a separate service (UBA) has decreased as the result of a simultaneous change in pricing principle cannot and should not distract from this fact.

Figure 1: comparison of UCLL in countries that apply a LRIC methodology



8. This is not because of any New Zealand specific factors. It does not cost 80% more to provide UCLL in New Zealand than everywhere else on a like for like basis. The significant divergence is the direct result of choices the Commission has made in its modelling.
9. At the heart of those choices are misapplications of the Act:
 - a. The Commission has given undue emphasis to its objectives of predictability and protecting investment incentives. Section 18 simply does not support this emphasis.;
 - b. It has artificially constrained its choice of MEA for UBA and its use of a Fixed Wireless Access (**FWA**) MEA for UCLL. Each of these constraints limits the Commission's ability to achieve efficiencies;
 - c. It has chosen an asset valuation approach that is inconsistent with the Act's definition of "forward-looking costs", that international experience has shown is incapable of delivering the outcomes intended by TSLRIC pricing and s18, and that is being phased out. This results in an asset valuation that is 3 times that of Chorus' actual assets and results in end-users compensating Chorus for assets they have already paid for;
 - d. It has included costs in its models that were not paid for by Chorus in the past, and will not be paid for by it in the future. **26%** of the capital costs in the Commission's model are for lead-ins, yet lead-ins are paid for by end-users or by the Government. By including these costs in its models, it asks end-users to pay for them twice; and
 - e. It has chosen not to model efficiency-saving techniques and practices that are commonplace today and practised by Chorus itself.

The Commission can make decisions that operate to increase prices for end-users but only where they can be shown to demonstrably result in greater long-term net benefits to end-users

10. The results of these draft choices are significant. Over the course of the Commission's 5 year regulatory period:
 - a. End-users will pay Chorus **over \$400 million** more than they would have if the IPP prices were confirmed.
 - b. The resulting decrease in broadband affordability will mean less New Zealanders have access to broadband services, and New Zealanders as a whole will make less use of broadband services. Using conservative assumptions, we estimate the social cost of this to be between **\$128 million** and **\$214 million in one year**. These effects, and costs, will repeat each year for five years.
11. The Commission states in its draft UCLL determination that its intention in making these decisions, which it was advised would lead to higher prices than alternative options open to it, was "not specifically to err on the high side" in its decision-making.
12. And yet despite the obvious divergence of its draft pricing from all reasonable comparators, and despite knowing it was making choices that would lead to higher costs, the Commission never checked to ensure that those choices were, in fact, the best choices to deliver benefit to end-users.
13. Because while we accept and agree that some modelling decisions that clearly operate to increase the price that consumers will pay for a service can be consistent with the s18 purpose,

that is true only to the extent that they can be shown to demonstrably result in greater long-term net benefits to end-users. It must do this.

14. The Commission does not attempt to value the predictability and investment incentive benefits to end-users it claims are promoted by its decision-making. If it did, it would find they are swamped by the associated costs to end-users of those choices. It would be left with the inescapable conclusion we are left with: the Commission has “erred on the high side”, whether it intended that or not.

When adjusted, the Commission’s models produce prices similar to those of comparable countries

15. We have asked WIK-Consult (**WIK**) and Network Strategies (**NWS**) to independently review the Commission’s draft models.
16. WIK advises that:
 - a. The Commission’s models overstate the efficient forward-looking costs of both UCLL and UBA by considerable margins – at least 30%-40% for UCLL and 20% -30% for UBA;
 - b. The Commission’s models are capable of producing efficient forward-looking costs, when adjusted for Commission decisions that import inefficient costs, and model errors; and
 - c. Applying sensitivity tests to the models with conservative adjustments results in UCLL and UBA prices that are consistent with the prices in comparable countries.
17. NWS advises that:
 - a. The Commission’s modelling of FWA underestimates the number of customers, and areas of the country, a hypothetical efficient operator (HEO) would serve with FWA;
 - b. Even under extremely conservative restrictions, including the Commission’s unbundling footprint as the boundary for FWA, proper FWA modelling results in a 37% reduction in the cost of non-urban lines in the Commission’s model.
18. WIK illustrates in its report how, using only some of the conservative adjustments to the Commission’s models, they can produce UCLL and UBA prices of \$16.64 and \$7.83 respectively. NWS’ FWA adjustments would reduce the UCLL price even further.
19. Correcting for a single component (the treatment of FWA) in the model results in a UCLL price that is lower than the IPP price. Similarly, simple adjustments to the treatment of lead-in costs or trenching costs or trench sharing assumptions or valuation of non-replicable assets have profound impacts on the resulting model prices. In each case, our proposed changes are designed to reflect what we expect an HEO would do in the real world.

It is incumbent on the Commission to produce evidence supporting its belief that its decisions to increase cost deliver greater benefits to end-users than the alternatives we have identified

20. We do not profess to know the “right” TSLRIC price for UCLL or for UBA. We are not saying these are the “right” prices for UCLL or UBA. We have, in fact, refrained from adopting any single price for either service in our submission. Quite frankly, we want a strong, well-funded Chorus that is able to continue to invest efficiently in New Zealand infrastructure and we do not have a clear understanding of what prices at these levels would mean for it. But we know that Chorus had sufficient funding, and was able to continue investing at efficient levels, at the IPP prices for UCLL and UBA. It said precisely that in the last UCLL pricing review.

21. If that is correct, the Commission's draft UCLL price is in error and loads unnecessary costs on end-users. In this context, it is incumbent on the Commission to show very clearly what the countervailing benefits the Commission expects end-users will realise from increased predictability and investment incentives are, and what their value is.
22. The very significant number and value of the errors in the Commission's model (we identify over 100) and the non-transparent nature of the geospatial modelling undertaken by TERA (and the resultant inability of parties to comment on it or on the Commission's modelling of demand) lead us to conclude that further steps will be required in the Commission's process. We recommend the Commission hold a workshop with parties to discuss the appropriate next steps in its process.

Backdating

23. We agree with the Commission that any decision to backdate will need to be demonstrably efficient, demonstrably promote competition, and directly benefit end-users.
24. Further, we believe s18 operates to require that the net benefit to end-users from such a decision must exceed those that would be created by a decision not to backdate.
25. We can see are no demonstrable efficiency or competition benefits that would be created by a wealth transfer from end-users to an upstream wholesaler with significant market power. The cost to end-users of the extra \$5 a month will always exceed any such benefits that might be found.
26. We acknowledge that, in the event the Commission decides not to backdate its decision, the retail price increases that have introduced as a result of the Commission's draft determinations could result in a similar transfer to retail service providers (**RSPs**). We are willing to make a commitment here that, if the Commission decides not to backdate the costs of any UCLL price increase, we will pass the value of our related retail price increases (during the period from 1 February until the Commission's final determinations) back to our customers in a fair and transparent way. We challenge all other RSPs to make the same commitment.

Drafting note

27. In the course of this submission we refer to, among other things, systematic failures in the Commission's decision-making, giving undue weight to two particular s18 considerations, making errors of law and failing to consider the interests of the very people it was set up to protect.
28. We do not, in any way, intend this to suggest any mal intent or negligence on the Commission's part. We value our long-standing relationship with the Commission, and the work the Commission does to grow our industry. Equally though, we see it as our role – along with other submitters – to hold the Commission to account against the very high standards set by the Act. We take that role seriously, and it so happens that in this case we disagree with the Commission in a number of places. Similarly, we have reservations about the Commission's decision-making process. And so we have set each of those disagreements and reservations out in our submission for the Commission to consider. We note also the numerous Commission decisions with which we agree. We have attempted to put pragmatic solutions forward wherever possible alongside our criticisms, and look forward to continuing to engage with the Commission through this process.
29. We acknowledge also, that we are an interested party in these processes. For the time being, that is because we will likely be directly financially affected by the outcome of them: while we have increased some of our retail prices in order to protect against the impact of a final decision to backdate, those price changes will not recover all of the backdated amount should the draft prices be confirmed. Not even close.
30. Having said that, we expect in time to be a simple conduit for these prices (including price increases), because we expect the competitive retail markets we operate in to flow input costs through in a competitively neutral fashion. So, in time, we expect end-users to bear the full cost of these increases. Many of those end-users are our customers, and we feel an obligation to stick up for their interests. All of those end-users are New Zealanders, and as a New Zealand company we also feel the need to stick up them. So we will continue to engage in this process in an open, forthright manner, and to unashamedly pursue our rights, in the hope that the result will be a final determination that all of us can have confidence in.

Introduction

1. Thank you for the opportunity to comment on the Commerce Commission's (Commission) draft pricing review determinations for Chorus' UCLL and UBA services (draft determinations).
2. The Commission's draft models are robust models that can form the basis of analysis to identify efficient forward-looking costs. The Commission's proposal to identify efficient forward looking prices by reference to the modern technologies and costs a hypothetical efficient operator (HEO) would use in providing a wholesale service capable of supporting voice and broadband services is a robust approach. The Commission is required to set efficient forward looking prices and this means it must abstract away from Chorus and the existing network, as these build in inefficient path dependencies. In other words, they are inevitably backward looking and inefficient.
3. However, in choices relating to key inputs and methodology, the Commission applies constraints on the assessment of efficient costs by giving undue weight to concepts such as predictability and investment incentives and adopts inputs that result in conservatively high prices at every point. The Commission's choices add inefficiencies that significantly increase regulated prices over the IPP and lead to over-recovery.
4. In Section A of this submission, we:
 - a. Summarise the implications of the draft model. The draft model results in prices significantly higher than prevailing in countries that regulate cost based prices and major trading partners. If finalised at this level, it will have a significant implications for end-users and economy-wide productivity;
 - b. Set out key methodological problems with the proposed approach and proposed inputs and estimate the degree to which these overstate efficient prices;
 - c. Comment on the Commission's preliminary views on backdating; and
 - d. Comment on the Commission's proposed framework for considering backdating, and on the Analysis Mason model.
5. In Section B, we comment on specific aspects of the draft model.
6. We also attach two independent reports from WIK-Consult (**WIK**) and Network Strategies (**NWS**). These reports identify a number of methodological flaws in draft model settings and inputs which results in the draft model overstating efficient costs. WIK and NWS recommend pragmatic adjustments that address these limitations.

SECTION A

The draft UCLL model produces inefficiently high prices

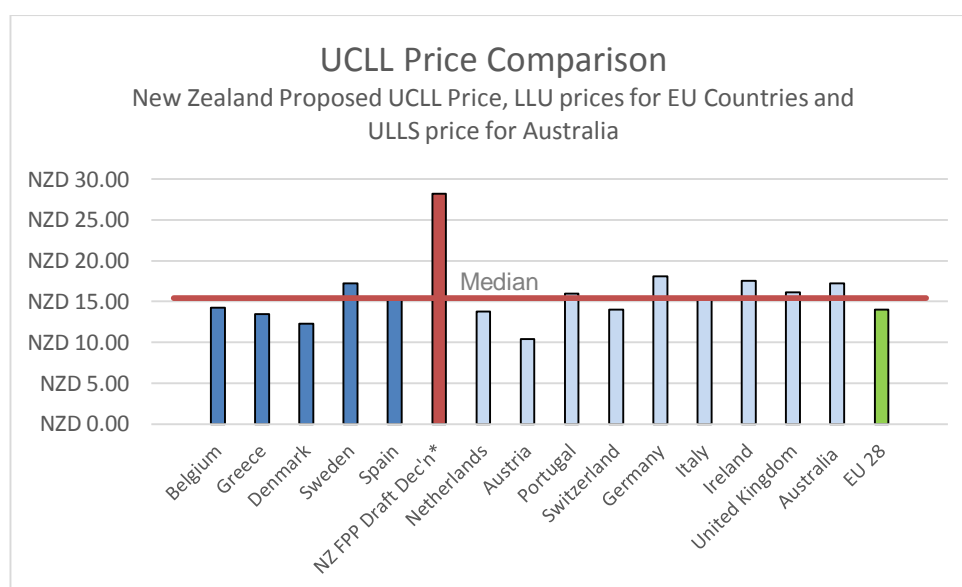
Draft UCLL prices are higher than any other regulated forward looking cost based price we are able to find

7. The Commission first set UCLL prices in 2007, using international benchmarking to arrive at a geographically averaged New Zealand price for UCLL of \$24.29. In November 2011, the Commission updated this benchmarking, increasing the price by \$0.17 to \$24.46.
8. In December 2012, the Commission further updated this benchmarking to arrive at a UCLL price of \$23.52. The raw benchmark data suggested a median benchmark based price of \$17.60.

However, the Commission applied an upwards adjustment of 33% to the raw data resulting in a price that was \$5.92 higher than the median price of the benchmark countries.

9. The Commission’s draft UCLL model results in a further \$4.70 per month uplift in UCLL prices to \$28.22 per line. Even after excluding the most expensive 6.4% of New Zealand lines from its draft model that no HEO would pay for, the Commission’s draft estimate of the forward-looking costs of providing UCLL in New Zealand is \$10.62 higher than its 2012 median benchmarked price.
10. In Figure 1 below we provide an updated view of international comparators. The Commission’s draft UCLL is **80% higher** than the median of the set. It is almost 60% higher than the second-most expensive country. These are the countries that we like to compare ourselves to in social and economic terms, yet this graph starkly illustrates just how far out step the Commission’s draft price is with any others. The significant divergence is enough to leave any reasonable observer with questions as to the credibility of the Commission’s modelling.

Figure 1: comparison of UCLL in countries that apply a LRIC methodology¹



11. The current UCLL price was set through a detailed and rigorous benchmarking process. While it has been consistently higher than international benchmarks, it has at least remained relatively stable through two pricing reviews since 2007. Prior to this FPP process, there was no suggestion that the prevailing UCLL price failed to cover the forward looking costs to provide the UCLL service.

12. In fact, during the course of the 2012 UCLL re-benchmarking review, Chorus confirmed its view that the IPP price was sufficient to cover its forward-looking costs. When it became apparent the

¹ Comparison of prices for similar services observable in the developed EU countries with which New Zealand is most comparable. The comparable prices for full access to the unbundled local loop shown in the graph below are generally cost-based prices, although not all are necessarily LRIC based prices – this is not intended to be a re-re-benchmark of TSLRIC prices.

raw benchmarking in that review produced prices below \$20, Chorus argued forcefully for the Commission to simply confirm the existing UCLL price. It testifying that:²

*If the Commission changes its benchmarking choices accordingly, it will likely result in an **averaged UCLL price close to the existing price, which is consistent with the forward-looking cost of providing the UCLL in NZ (our emphasis)***

13. Chorus also submitted, at the time of the UBA benchmarking review, that the purpose of the requesting a UCLL FPP pricing review was to facilitate a UBA review rather than concerns over the prevailing UCLL price, in itself.³

The Commission seems to be encouraging the industry to ultimately apply for an FPP on UBA. While it would be preferable to wait to see the outcome of this UBA process, there is a statutory deadline for filing a UCLL FPP application, which cannot be extended. It is not clear to Chorus how the Commission could ensure that Chorus recovers its costs overall if some prices are benchmarked, and others are based on TSLRIC modelling.

14. These facts, and the magnitude of the divergence from past estimates and overseas prices – which would have the effect of transferring between \$500 million and \$1.5 billion dollars from New Zealand end-users to Chorus over the course of the next five years – should have been sufficient to cause the Commission to delve more deeply than it has into the reasons for this divergence, and to think more carefully about making the number of decisions it has to favour predictability and investment incentives over lower prices.⁴ Surprisingly, the draft determinations do not comment on or explore the significant divergence from previous pricing estimates, and international experience.
15. Finally, we note also that draft prices at the levels proposed by the Commission will enable Chorus to capture and retain much of the efficiency benefits of the 2011 reforms.
16. At the time of the reforms, the high retail minus UBA price was expected to fall from \$21.46 to cost, and it was expected that the benefits of that price decrease would flow through the end users (in part, mitigating the expected impact of averaged UCLL prices). Spark was prohibited from unbundling for a three year to allow a transition period before UBA prices decreased to cost.
17. The draft UCLL price proposed by the Commission undoes much of that benefit. So much so, that our assessment is *we would have achieved, through commercial means, a lower average cost per line had prices been held static at the 2011 levels than we will using the Commission's draft regulated prices.*
18. In the meantime, the prospect of true cost-based pricing has – as economic theory tells us it will – spurred Chorus to achieve significant efficiencies in its costs, and to increase end user connection

² Chorus Submission on UCLL Re-Benchmarking Revised Draft Decision, 5 June 2012, p5.

³ Chorus submission on UBA draft determination 1 February 2013, page 6.
<http://www.comcom.govt.nz/dmsdocument/9794>

⁴ Assuming constant UCLL demand of ~1.7m lines over 5 years. Draft UCLL price increase is \$4.70 and WIK estimates that the draft model overstates efficient UCLL prices by 43% to 50%.

charges, charges for associated wholesale services. It has also received significant RBI and other subsidies, and agreed a number of changes to UFB arrangements that reduce its costs.⁵

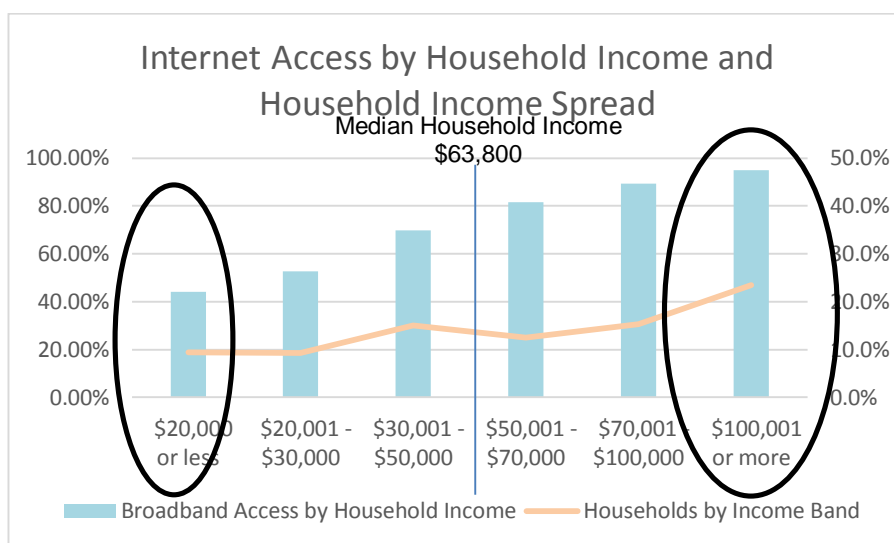
19. Chorus is demonstrably better off under the Commission's draft application of the 2011 regulated pricing reforms. It is not at all clear that end-users are.

These prices would have significant consequences for end users and productivity

20. Retail service providers have little option but to pass through signalled price increases to retail customers. We have already seen across the board price increases for voice and broadband customers (reflecting draft UCLL price increases and risk of possible backdating). While the draft UCLL price increase has yet to be fully passed through to date, we expect that finalisation of the FPP and competition amongst RSPs will ensure this occurs over time.
21. This highlights an important factor overlooked by the Commission in its draft determinations: the social cost of setting UCLL and UBA prices at levels that are likely to be above efficient forward-looking costs.
22. It goes without saying that high UCLL prices are not costless: end-users are typically not served by paying more than the efficient price. Potential telecommunications end-users will be deterred from taking service and investment will be distorted. In economic speak, consumer preferences will be only partially satisfied due to underinvestment in retail services, and end-users, dependent on the level of own-price elasticity, will reduce their consumption of the retail services. All end users will pay more than they otherwise should, and some end users will forego telecommunication services altogether.
23. The Commission refers to the potential for positive externalities from a higher copper price, in the form of increased migration to fibre. It does not consider what we believe are likely to be much more significant welfare losses from the decreased affordability, take-up, and use of broadband access a higher price would cause.
24. The recent Statistics NZ release of Census 2013 data in relation to household broadband access (Figure 2 below) reminds us of who the most impacted consumers are – those least able to afford access to the internet. Internet access rates vary significantly across consumer demographics and, for price sensitive groups. High income households have double the broadband uptake of the lowest income households. Improved connectivity and increased broadband take-up is a critical enabler of productivity growth and economic performance at a national level, and the same is true at a household level: if we can encourage more of those low income households to purchase broadband access, we can expect to see an improvement in their average income levels, the educational attainment levels of children living in them, and the workforce status of adults living in them. These goals are fundamental to our identity as a nation.
25. But a \$5.40 increase in the retail price for broadband (\$4.70 + GST) will decrease broadband affordability, and slow broadband take-up, particularly among these lower-income households. It will also, on average, reduce the use of broadband.

⁵ For example, by requiring end users to fully fund any network extension or capacity, increasing tail extension prices, increasing 10Gbps hand over link prices, capacity charges for the ATM based UBA service and increasing miscellaneous charges.

Figure 2: Internet uptake by household income⁶



26. This foregone demand comes at a significant cost to consumers. To derive an illustrative estimate of the materiality of the social cost, we made an estimate of the impact on broadband access connections of proposed UBA and the UCLL prices relative to WIK’s conservative estimate for efficient prices (detailed in Attachment [D])⁷. In conservatively assessing the likely social cost, we made reasonable assumptions for the pass-through of price change by RSPs, and for the own-price elasticity of demand for copper broadband in New Zealand. We then derived the estimate used a range based on international estimates of the impact of additional broadband penetration on the rate of growth in GDP for higher income countries such as New Zealand.
27. Even this illustrative analysis suggests significant losses from the draft prices. The estimated impact on the increase in the annual rate of growth of GDP in 2013 dollars lies between \$128 million and \$214 million in one year alone, with the effects and cost repeated in each subsequent year, over the course of the Commission’s five year regulatory period. This estimate is likely conservative as it does not quantify changes in consumption if prices were set at the competitive level, or take account of the additional efficiencies that NSW identify could be achieved in UCLL pricing if better use was made of FWA in the Commission’s model.
28. The estimated social loss would need to be set against any fibre migration or investment benefit. The draft decision provides no indication that the Commission collected, nor considered, any evidence establishing a causal link between copper prices, investment and the speed or trajectory of migration to fibre-based services.
29. However, indications are that, at most, there is minimal impact on the fibre migration. As detailed in earlier submissions, our experience has been that relative price (at least in any reasonable range being considered) has no discernable impact on fibre uptake.

⁶ Source data – Statistics NZ

⁷ These estimates are intended to be illustrative of materiality and significant additional work would be required to refine and extend these to a full estimate of the social cost. Further, this estimate is likely conservative since it does not quantify changes in consumption if prices were set at the competitive level.

30. Further, the Statistics NZ 2013 census data, as depicted above, suggests that the migration impact is likely to be limited:
- a. One third of New Zealand households providing information had incomes below \$30,000 and less than 50% of these households had broadband access. It seems to us unlikely that these highly income and price sensitive consumers would be deterred from migration to fibre from a high copper price (they are at more danger of dropping off the network completely).
 - b. More likely, the greatest effect on migration would be seen from households with income above \$70,000 (about 90% of whom have broadband access). Yet these households are likely the least price/income elastic. We assume that the incremental benefit of migration to fibre access for those households will be limited but, like the Commission, have not made any estimates.
31. We haven't sought to repeat here or quantify the spill-over effects on productivity of high prices (the Productivity Commission recently concluded these are significant) or distortion to investment. We don't think we need to – because the costs we have identified are enough to convince us of the very high likelihood, the presumption, that the welfare losses higher than efficient costs will outweigh any investment incentive, predictability or fibre migration benefits they may create.

The original price is high because of inefficient choices

32. Faced with the level of its draft UCLL price, and its significant divergence from prices seen in any other countries, the Commission must surely have asked itself what the cause of this price is: is it the design of TERA's model, is it endogenous issues unique to New Zealand that an HEO simply cannot correct for, or is the Commission's decision-making, its overweighting of predictability and investment incentives that have led to it "erring on the hi-side"?
33. In terms of TERA's models, we see no evidence that would lead us to conclude these models are dramatically different, or should lead to dramatically different results, to other TSLRIC models used elsewhere in the world. It's not the models.
34. In terms of New Zealand, we see no evidence that would lead us to conclude that New Zealand is so fundamentally difficult to make network investments in that it should cost 80% more to do so than in other countries. The Commission has correctly excluded the most expensive 6.4% of lines from its UCLL model. These 6.4% of lines have not, and would not in the future, be paid for by a commercial organisation – rather than have and would be paid for by Government and or end-user contributions. The rest of New Zealand is not that different to other countries – in fact we have higher urbanisation than just about all of them (that is, while we may be spread out a bit in our long, skinny country, where we do live we tend to cluster our houses together more than other countries to). Even if we are more expensive in some respects then, we are highly unlikely to be 80% more expensive.
35. Late last year we commissioned NZIER to report on the performance of the mobile sector in New Zealand. It reported on, amongst other things, the costs of deploying network in New Zealand relative to the United Kingdom. It concluded that the costs of network investment were approximately 17% higher per person in New Zealand than they were in the United Kingdom. The UK's UCLL price is NAD\$16.14. The Commission's draft UCLL is 75% higher. It's not the country.
36. That leaves the Commission's decision-making. We support and agree with many of the Commission's modelling principles. The HEO approach, the modified scorched node approach, the commitment to remove double counting, the application of the TSO boundary and the attempt

to make efficiency adjustments all point to a solid foundation for the model. But others appear entirely inconsistent with s18 and the interests of end-users. The new s18 emphasis on predictability and investment incentives, the rigid adherence to an approach to TSLRIC asset valuation that is out of date and the artificial constraints on network sharing, use of FWA and the UBA MEA all appear contrary to s18. In all cases alternative options were open to the Commission, yet in none of these cases did the Commission attempt to quantify the savings available to end-users from those alternative options, or to understand the value of the benefits the Commission claimed its choices promoted (in most cases these were predictability and investment incentives).

37. But conceptual and design choices are of a different nature. Our Act directs the Commission to achieve, as its over-arching goal, long-term benefits to end-users, by delivering, through regulation, the benefits that competition would otherwise be expected to deliver to end-users in markets where significant market power exists. This ensures end-users do not pay for inefficiencies that are the result of a less than efficient market. In a series of decisions in its draft determinations, the Commission has failed to apply this standard.
38. WIK-Consult and Network Strategies have examined the models prepared for the Commission by its consultants. They conclude that the models incorporate a number of conceptual deficiencies, parameter choices and technical computational problems which means they does not represent efficient costs. The draft models fails to reflect – or even model – major efficiency opportunities and include significant double recovery of costs.
39. WIK and NWS conclude that the Commission has made a number of design choices that do not reflect those an efficient provider would make, and that result in unnecessary and inefficient costs in the Commission's models. We summarise these below.

The Commission does not correctly apply the most efficient technology

40. The use of an MEA, whereby regulators seek to identify the most efficient technologies for use in modelling a forward-looking network, is common and best practice. The Commission's TSLRIC principles suggest it will also follow this practice. But in practice, the Commission has made a series of decisions that directly conflict with those principles:
 - a. The Commission's model artificially constrains the application of FWA in parts of New Zealand where it is unarguably the most efficient technology;
 - b. Whereas the Commission has modelled FWA alongside FTTH in its preferred UCLL MEA, it has ignored FWA entirely in its modelling of a copper/FTTN access network;
 - c. No allowance is made for the HEO to choose to deploy a mix of FTTH and FTTN on an exchange service area basis, even though the TERA model shows that FTTN is demonstrably cheaper than FTTH in some ESAs (and vice versa); and
 - d. The Commission has artificially constrained its choice of UBA MEA by reading a "presupposition" into the UBA pricing principle that simply does not exist.
41. In each of these cases, the Commission has other options it can choose that lead to more efficient, lower cost models and therefore prices. In each of these cases, an HEO acting rationally would have reached a different decision to that taken by the Commission. In considering similar issues that have arisen in connection with either our Act or Part 4 of the Commerce Act the Courts have consistently ruled against any asset valuation methodology that results in end-users paying for unnecessary and/or inefficient costs, or in an over-recovery of costs. The Commission must be mindful it does not make decisions which have these effects in these processes.

Fixed Wireless Access artificially bounded by RBI coverage area

42. When compared to its treatment of FTTH, FTTN technologies in its draft models, it is clear the Commission has exercised considerably less focus on FWA modelling. The Commission has applied a number of simplifying assumptions that dramatically constrain the use of FWA with little in the way of reasoning.
43. There is no feasible rationale for limiting the use of FWA by an HEO to those areas where the Government has subsidised deployment of RBI cellphone towers. No operator would make technology decisions on such a basis, let alone an HEO attempting to manage costs efficiently. Rather, that HEO would apply a cost/performance trade-off to determine which technology it used where.
44. Even where FWA technology is used, the model does not appear to use the most efficient FWA technology available, or to model its coverage correctly. Whereas the model documentation suggests that LTE advanced has been used, the peak throughputs used to determine the maximum number of users that can be served by each cellsite appears to be that associated with a single sector of a native LTE site. Further, whereas the model documentation assumes the HEO uses LTE advance provided over 2x20MHz of spectrum in the 700MHz band, the coverage areas used in its model are designed for delivery of 3G services using higher frequency spectrum bands. The Commission acknowledges this in its draft determinations, but makes no attempt to correct for it.
45. NWS conservatively estimates that in wrongly constraining the geographical boundary for FWA use, and in failing to correctly model FWA technologies and coverage, the Commission has overstated non-urban UCLL prices by at least 37%. Even that 37% is likely to be overly conservative, as NWS has limited its modelling to those exchanges services areas where no physical unbundling has occurred – a limitation that an HEO would not apply to itself.

Fixed Wireless Access excluded entirely from Copper/FTTN model

46. In applying its TSLRIC principles, the Commission recognises that an HEO deploying a FTTH network would choose an alternative, more cost-effective technology – FWA – in some non-urban areas of New Zealand. It does not recognise this same principle in modelling a copper/FTTN network. We can see no reason why the use of FTTH or Copper+FTTN would affect an HEO's technology choice in those same non-urban areas of the country. If the Commission applied the same FWA assumptions to its Copper/FTTN model as it does to its FTTH model, it would lead to a significantly lower overall Copper/FTTN cost. That might, in turn, increase the likelihood of a cost adjustment being needed to the modelled FTTH cost.

Assumption that an HEO would only deploy one of fibre or copper

47. TERA's model is capable of assessing the respective costs of an FTTH and FTTN network on an MDF by MDF basis. WIK informs us that, in some exchange service areas, FTTH is cheaper, and in others FTTN is. An HEO acting rationally would consider deploying both technologies (alongside FWA) if it resulted in material cost savings. The Commission, though, makes its MEA decision on a nationwide basis, without considering or quantifying the potential benefits, of a more granular approach. At the very least, a more granular approach should be taken to inform the question of whether a downwards cost adjustment is necessary to the Commission's modelled FTTH/FWA network cost.

Incorrect application of the UBA pricing principle wrongly constrains choice of UBA MEA

48. The Commission asserts that its choice of UBA MEA is limited by a "presupposition" in the UBA pricing principle that the UBA MEA must sit atop Chorus copper local loop network.

49. No such presupposition exists. The UBA pricing principle simply requires that the Commission's UBA price – obtained by applying a TSLRIC exercise to calculate the forward-looking costs of the UBA service – be added to the **price** for “Chorus’ copper local loop network”. “Chorus’ copper local loop network” is title of the designated access service known as UCLL. That service is also subject to a TSLRIC pricing principle. In both cases, the choice as to whether to use an MEA is left to the Commission, and in both cases, the choice of which MEA to use is entirely left to the Commission. It makes no sense to suggest that Parliament decided to require the Commission to assume one particular UCLL MEA for the purposes of setting the UBA price even though the Commission could choose a different UCLL MEA for the purposes of setting the UCL price.
50. If the Commission had not incorrectly constrained its MEA decision-making process, it would have reached a different decision. Any HEO deploying a bitstream service today would choose to deploy it over a fibre infrastructure using fibre-based electronics or FWA in areas of non-urban New Zealand.

The Commission values re-used and unlikely to be replaced assets at replacement cost.

51. In 2013, following several years of consultation with European regulatory authorities and the BEREC, the European Commission released a recommendation setting out the LRIC costing methodology to be applied in European states in the costing of UCLL services by the end of 2016. It recommended that transmission medium and civil engineering assets – which all parties acknowledge are unlikely to be replicable – should be valued “at current cost, taking account of the assets’ elapsed economic life and thus of the costs already recovered by the regulated SMP operator”.
52. The European Commission’s objectives in setting this valuation recommendation included:⁸
- a. “Stable and predictable wholesale copper access prices over time” (para 25);
 - b. “Cost recovery” for “costs that are efficiently incurred” and an “appropriate return on invested capital” (para 26); and
 - c. “Appropriate build-or-buy signals” (para 27);
53. These are almost precisely the same objectives the Commission uses in its draft determination to reach the opposite conclusion in respect of these assets – to value them all using full replacement cost.
54. It is uncontroversial that all operators in practice, re-use infrastructure wherever this is feasible. That is, where the opportunity cost of re-using those assets (often including a small investment to improve the asset and/or extend its lifetime) is lower than the investment cost of deploying entirely new assets. WIK notes numerous public statements from Chorus confirming this is their standard practice.
55. The Commission’s approach holds the HEO to a different standard – one that Chorus’ investors would not accept from their own organisation – and in so doing accepts the unavoidable outcome of that decision: that end-users will compensate Chorus for costs it will not ever incur in the

⁸ European Commission Recommendation on consistent non-discrimination and costing methodologies to promote competition and enhance the broadband investment environment, 11 September 2013.

forward-looking provision of the UCLL service, and that Chorus will over-recover. It is a simple and significant transfer of consumer welfare from end users to Chorus.

56. WIK estimate that the value of this transfer is likely to amount to 20% of the total investment cost in the Commission's UCLL model. The Commission, as far as we are aware, has not attempted to value the predictability and investment incentive benefits it claims a full ORC valuation will achieve for end-users. We consider it highly unlikely these benefits will exceed the costs.
57. We believe the Commission's decision is an error. We believe the European Commission's recommendation and findings better achieve the common objectives it shares with the Commission, and better achieve our s18 purpose.

The Commission does not properly optimise the network.

58. A key foundation of forward looking models is that they optimise the deployment of the network. Good modelling practice is to avoid both over-optimisation, which would result in materially lower than realistic cost estimates for both services, and under-optimisation which result in a cost which would be materially higher than the range of competitive economic cost which would be charged to downstream entities by an efficient operator.
59. In this case, the Commission has chosen a modified scorched node approach. We agree that a modified scorched node approach is a common approach taken by regulators internationally, and support its application. But more needs to be done in order to properly optimise the Commission's model. In particular:
- a. Currently there is no optimisation of exchange service area boundaries. A modified scorched node approach accepts that the locations of existing nodes are fixed. Even if not optimising the number and location of these nodes though, an HEO would still efficiently optimise the boundaries of its exchange service areas to minimise trenching cost. This reflects the reality that, as a result of numerous factors including urban sprawl and old fixed numbering rules, not all premises today are connected to the most efficient node. The Commission's model does not include any such optimisation, and should.
 - b. Shortest path algorithm. WIK and NWS are unable to review TERA's geospatial modelling, or its shortest path algorithm. However, from TERA's documentation it appears as if TERA has applied a shortest path algorithm, which minimises cable length between an end-user premises and its local exchange. WIK recommends that an augmented shortest path algorithm, which minimises trench cost rather than simple cable length, would be applied by an HEO because it is more efficient. If TERA's current algorithm does not in fact achieve this outcome, it should be amended to do so.
 - c. UBA FDS number and locations should be optimised. The TERA model accepts and reproduces the historic Chorus UBA network – including the number and location of first data switches (**FDSs**) and the backhaul links between them. Even under a modified scorched node approach, we would expect to see these assets reviewed and optimised. It may be, for example, that a greater or lesser number of them would reduce the underlying infrastructure cost. It is also likely that re-design of the backhaul links into DWDM ring topologies will also reduce cost (and increase network resilience).
 - d. UBA DSLAMs, FDSs and links should be properly scaled. TERA's UBA model also appears to be largely based on its shortest path algorithm. But as we have explained above, minimising cable length may not be the optimal approach. When modelling a largely traffic-sensitive service such as UBA, optimisation is also largely traffic-dependent. The UBA model could be made more efficient by re-dimensioning key assets – the FDSs the DSLAMs and the nodes – in it for demand. Currently, the model takes a very

unsophisticated approach to this. All DSLAMs in cabinets, for example, are capable of supporting 384 end-users, despite our estimate being that approximately 85% of cabinets serve 192 or less users. The dimensioning and order of the backhaul links between these nodes should also be optimised, having regard to traffic. In order to do this, the first step would be for TERA to incorporate all relevant demand (including for example Chorus' Tail Extension Service demand) into its model. As it currently stands, not all traffic is modelled. Once all traffic is in the model, re-dimensioning of the links (again this is likely to be into ring topologies of some form) can be undertaken.

Equipment prices and trenching costs in the Commission's models are systematically overstated.

60. It goes without saying that an HEO deploying large-scale networks in New Zealand would apply rigor to the exercise of driving supplier costs down. Yet reviews of the rates and prices used in the Commission's models by WIK and NWS indicate systemic overstatements of all categories of equipment and trenching costs. There appears to be an over-reliance on Chorus data, even where this data is many years old, and a hesitancy to assume any efficiencies whatsoever against Chorus and/or list prices, even where these efficiencies are identified and sized.
61. Trenching costs are the most material cost in deploying an access network in New Zealand, and deserve additional rigor in the Commission's modelling. As we have already noted, TERA's documentation appears to suggest that the models do not attempt to minimise trenching cost per se in their shortest path algorithm. If that is so, it must be corrected. Similarly, we discuss the Commission's unrealistic assumptions with regard to third party trench sharing (it assumes there is no sharing of this kind) and re-use of existing civil infrastructure including trenches (again, it assume none) above and below. Each of these, if dealt with correctly, can materially reduce the overall trenching cost for the HEO, and each of these represents practices and approaches of operators today, including Chorus. We cannot fathom a situation where any operator would not make use of each of these practices.
62. Further, WIK identifies a systematic over dimensioning of sub-ducts in the TERA model, with an unrealistic dimensioning rules applied that utilises only one sub-duct size throughout the network. More efficient dimensioning of sub-ducts in the model will result in smaller ducts, therefore smaller trenches and therefore lower trenching cost.
63. In addition to these improvements, and the responses in the WIK and NWS reports to Beca's trenching cost analysis, we also note that neither Beca nor the Commission has incorporated any "large scale works" discount to the list prices for trenching quoted by Beca. Beca itself notes that Chorus may receive discounts of 20% on such work
64. There is a similar systematic overstating of equipment prices in the Commission's models. We have discussed the need for much greater scaling of active and passive equipment above – from DSLAM and FDS sizes to sub-ducts and trench sizes – which will in turn lower costs. IN addition, though, we expect the Commission's model to incorporate equipment prices that reflect the global nature of equipment markets these days, and the reality that all operators of even New Zealand scale expect, and receive, substantial discounts off list prices for telecommunications equipment. WIK identifies that equipment prices used in the Commission's model greatly exceed those used in other regulator's models, by factors of up to 7 (in the case of ducts). WIK's experience is that discounts of 20%-40% are common in Europe. Our internal experts advise us that even larger discounts are commonplace. Spark, for example, routinely receives discounts from its international equipment suppliers of []**SPKCI**
65. WK reports that, in aggregate it conservatively expects trench prices to be overstated by 45%, duct prices by 50% and active equipment prices by 30%. These are not minor adjustments to the

Commission's model that may be explained away as being within the modelling margin of error. The nature of these overstatements suggests they are the result of fundamental and systemic overstatement. Again, in applying an Act with the dominant purpose of driving the prices of providers with significant market power down, systemic overstatement is difficult to understand or support.

Efficient sharing opportunities with other utilities are not modelled.

66. WIK advises that international best practice is for regulators' LRIC models to include an allowance for asset sharing between the HEO and other utility providers. The Commission's UCLL model provides for sharing of overhead infrastructure with other utilities, but no sharing whatsoever of underground infrastructure. It is inconceivable that an efficient operator, in a workably competitive market, would not seek to defray the largest single contributor to its cost (trenching) by sharing that cost with other operators. The principal reasoning provided by the Commission is a lack of evidence of this practice occurring in New Zealand. Firstly, that Chorus chooses not to do much of this is a reflection of market conditions, rather than efficient practice. Whereas the HEO, and any other participant in a competitive market, would seek to maximise revenue and minimise cost from, among other things, infrastructure sharing and duct access products, the Commission's models import Chorus' existing inefficiencies.
67. The very purpose of this exercise is drive inefficiencies that would not exist in a competitive market out. The lack of much in the way of asset sharing or voluntary duct access are two prime examples of practices that would not be present if Chorus was subject to workable competition.
68. Spark is involved in an increasing number of trench-sharing projects with a number of other utilities, and expects this practice to continue to increase in prevalence. At the time of writing this submission, we are actively involved in []SPKRI
69. WIK advises that underground sharing typically reduces trenching cost by between 5% and 30% in regulators models, and we recommend the Commission adopt a point in this range in its models.
70. In contrast to its assumptions regarding underground infrastructure sharing, the Commission does assume sharing by the HEO of overhead infrastructure. The Commission uses information from electricity distribution businesses (EDBs) to determine the extent of aerial deployment likely to be undertaken by the HEO – which it assumes will be shared with EDBs, in accordance with existing market practice today. Overhead infrastructure is used for distribution cable (49%) and lead-ins (36%).
71. The Commission's figure of 49% for distribution cable is based on evidence from EDBs about actual deployments. The figure of 36% for lead-ins, however, appears to be an average of EDB information (which suggested a figure of 51%) and a Chorus "target" of 20% for its UFB network. Whereas the EDB information has actual deployment behind it, as does the Northpower UFB of 60% aerial deployment figure quoted by NWS, the Chorus figure of 20% is, at best a well-intentioned estimate and at worst misleading. That it has been given equal weighting as the EDB information is inexplicable. NWS recommends the Commission apply the nationally weighted EDB figure of 51% in its model, or at the very least apply equal weighting to the Northpower figure as to the Chorus one.

Contributions from third parties have not been excluded from the Commission's models

72. Chorus, as is not uncommon, has received substantial capital contributions towards the cost of its current copper and fibre networks. These contributions have come from:
 - a. Central Government (UFB and RBI funding);

- b. Industry (TSO funding); and
- c. End-users (contributions to lead-in costs and network extensions beyond the TSO boundary).

73. Similarly, any HEO would seek capital contributions from end-users and central government in building its network. The Commission's models do not properly account for these contributions and therefore overstate the costs to supply the UCLL and UBA services.

Central Government

74. TERA's model appears to make some allowance for the Government's contribution. NWS has identified an allowance of between \$13.7 million and \$15.8 million in the model for what it interprets as RBI grants. There is no breakdown of these figures or how they were arrived at, but they do not seem to match the public sums involved in that program. Those sums amount to \$300 million over six years, with the bulk of that (\$236 million) granted to Chorus, with a further \$150 million subsequently announced (but not yet awarded) by the Government. There is no corresponding allowance in TERA's model for UFB contributions. We note that, while the Government's \$929 million of UFB contributions to Chorus are not expressed to be in the form of grants, there is no interest or dividends payable by Chorus in relation to these contributions until 2025, and debt repayments are not due to commence until 2025 either. Given these extremely favourable terms, and the very long-term nature of the associated liabilities, for the purposes of regulatory modelling we may assume this funding is of the nature of a grant.

TSO

75. The Commission correctly excludes premises that are outside the TSO boundary from its draft UCLL model. These are premises that no commercially-motivated HEO would connect without contribution from third parties. Typically, those contributions can be expected to come from end-users (paying for network extension beyond the TSO footprint) and central Government (by way of grant). In the past, however, they have also come from industry, in the form of inflated interconnection payments (these pre-dated today's TSO boundary).

76. An HEO simply would not incur these costs, and nor looking forward will Chorus.

End-users

77. Similarly, the Commission must recognise in its models the significant contribution made by end-users to lead-in costs. As WIK notes, lead-ins represent approximately 26.3% of fibre network capital costs, all of which Chorus is compensated for.

78. An HEO would not face any of that cost. Just as it is common practice today for customers of electricity and gas providers to pay for lead-ins, so it is common practice for end-users to pay for telecommunications lead-in infrastructure. Chorus' current lead-in policy for new properties, for example, requires an end-user to:

- a. Provide an open trench within which a lead-in can be laid, and pay any reinstatement costs necessary;
- b. In the case of a standard installation, pay \$195 for the installation of a lead-in;
- c. In the case of a non-standard installation, pay \$195 for the installation of the first 100m of a lead-in, plus time and materials for any additional distance.

79. Its policy for standard installations in sub-divisions of 4 or more premises requires that the end-user to provide either a \$900 or \$1600 contribution per premise, as well as provide an open trench and pay for reinstatement.
80. An HEO would require similar contributions from end-users. TERA's model contains an option to exclude connection fee revenues, but elects not to do so, and does not even consider whether lead-in costs should be excluded. The Commission's model currently ask end-users to, effectively, pay twice for the same infrastructure. This is a significant over-recovery the Commission must address.

The Commission's constant demand assumptions is realistic

81. The Commission's assumptions with regard to demand in essence establish a New Zealand market frozen as at April 2014. There is no consideration of population growth or increased availability of fibre services over the period. In essence the hypothetical universe of the HEO will increasingly diverge from the real New Zealand.
82. NWS reports on the clearly unrealistic results of this approach. Specifically, under the Commission's model:
- a. mobile-only households will comprise more than one-fifth of all households by 2020;
 - b. there will be no further high or medium density developments, or infill projects, in established areas over the period 2014 to 2020, and thus population (and line) density will remain static; and
 - c. the increasing popularity of high bandwidth applications and cloud services will have no effect on demand for fibre/UFB services.
83. These assumptions are not acceptable in a model intended to set prices for a regulatory period of five years.
84. We understand the modelling methodology adopted by TERA is such that it would be extremely difficult to incorporate changes in population or increasing densification. Given we expect a population increase alone of 312 900 in this period, with much of this increase expected to be absorbed through greater densification of urban areas, this creates a problem. More households in urban areas will result in greater line density and therefore a lower unit cost per line.
85. NWS estimates these effects will decrease the overall UCLL cost by approximately 9% by 2020. The Commission's models cannot ignore these effects. If it is the case the models cannot be amended to properly account for population and density changes, then a top-down adjustment will have to be made.

Backdating

86. The Commission's emerging view on backdating is that, once determined, final monthly prices for UBA and UCLL should be backdated to 1 December 2014 but no earlier.

87. The Commission's view on the legal framework applicable to backdating is that:⁹
- a. It is not required to backdate its pricing review determinations, but it has discretion to do so (paragraph 14);
 - b. The section 18 purpose statement will provide the most important guidance when determining whether to backdate prices. Any decision to backdate will need to be demonstrably efficient, demonstrably promote competition, and directly benefit end-users (paragraph 15);
 - c. A key reason in favour of backdating is that the FPP price can be seen as a "correction" of the proxy IPP price (paragraph 16, citing from the Court of Appeal backdating judgment); and
 - d. If companies are financially disadvantaged by the timeframes of the FPP process, this may harm investment which would not promote competition for the long-term benefit of end-users (paragraph 22, 28).
88. The key requirement among all of these factors is the requirement for a decision to backdate to be shown to be demonstrably **efficient**, to demonstrably **promote competition** and **directly benefit end-users**.
89. We have been consistent in our position on backdating throughout the Commission's process – we were clear that, whether in our favour or not, a decision to backdate would not meet the s18 test. We requested an early decision by the Commission that it would not apply backdating.
90. We recognised that any backdating award could be significant – more than sufficient to threaten business models and businesses (be that Chorus's business model and viability, or a small RSPs) and we saw no evidence it would deliver demonstrable benefits to end-users.
91. Our view today remains the same.
92. The primary impact of backdating is a wealth transfer between parties to the STD. Bare wealth transfers do not, on their face, promote the efficiency purpose of section 18 for the benefit of end users unless they can be clearly shown to have a flow-on effect of promoting efficiency.
93. In the case where the recipient of a wealth transfer holds significant market power, or a monopoly, in the relevant markets, it should not be expected that a wealth transfer will have flow-on pro-efficiency effects. Where the party with significant market power operates in a market that is upstream from, and without any direct relationship with, end-users this negative hypothesis is strengthened.
94. Similarly, in the case where a decision results in a transfer to a party with significant market power, or a monopoly, in the relevant markets and that is upstream from retail markets it should not be expected that a wealth transfer will have flow-on pro-competitive effects.

⁹ All paragraph references in this section refer to the December 2014 process and issues update paper *Supra*.

95. It is difficult to even perceive of scenarios where these “demonstrably efficient” and “demonstrably promote competition” limbs of the Commission’s (and section 18’s) test can be satisfied in this particular case.
96. And the third limb sets the highest bar of all. We would add one element to it: that is that in order to satisfy s18, the **net** benefits to end-users from a wealth transfer created by a backdating decision (be they increased efficiencies or competition) must be demonstrably greater than the benefits to end-users from a decision not to backdate.
97. Since the parties that will bear the cost of any backdating are, in relatively equal proportions, end-users and retail service providers, there are clear static efficiency costs to end-users from a decision to backdate. A proportion will come directly from their wallets, and the rest will come from decreased competitive intensity (with resulting higher prices) and innovation at a retail level from RSPs.
98. We see no evidence, and cannot envisage any, that suggests the net benefits – in whatever form they may take - from the Commission’s preliminary view to backdate would meet any of these three limbs. We recommend the Commission issues an updated draft view indicating it will not backdate whatever the result of its final pricing decision.
99. Of course, we recognise that such a decision could – in light of the price increases announced by retail service providers including Spark – equally result in a wealth transfer from end-users to RSPs. We commit here that, in the event of a Commission decision not to backdate the costs of a UCLL price increase, we will pass the value of our related retail price increases during the period from 1 February until the Commission’s final determinations back to our customers in a fair and transparent way. We challenge all other RSPs to make the same commitment.
100. In a similar vein, we request that, if the Commission decides to confirm its backdating view despite our submissions, it sets a backdating period commencing 1 February 2015, which was the date at which we were able to start passing some of the signalled price increase on to customers.
101. Finally, we note and accept the Commission’s conclusion that uncertainty associated with FPPs can harm investment incentives while the process of the FPP unfolds. Be that as it may, though, we view this as an unavoidable cost of providing telecommunications services in New Zealand – a function of the regulatory access framework we all operate in. Further, we question how a decision to backdate, or not, can affect those investment incentives.
102. Firms, by their nature, must make prudent investment decisions having regards to their estimation of external risks. During an FPP process, all parties must manage and adjust their investment programmes in line with the risks they see arising from it. But prudence does not amount to “banking” a backdating transfer ahead of time. Chorus, for example, is very unlikely to make any adjustment to its investment programme on the basis of the Commission’s draft backdating decision – because it knows full well that decision is subject to confirmation following a public consultation. It is more likely to proceed on the basis that it will not receive any backdated award. This holds true even if the Commission has, in the past, made such awards because a s18 analysis must be performed anew each time.
103. Similarly, if and when the Commission does make such an award, Chorus is very unlikely to amend its forward-looking investment programme by “subsidising” future investment plans with some or all of the backward-looking award: future investments will continue to be made on their merits. If there are any effects on investment incentives, then, they are likely to be at the edges – and they are likely to be swamped by the incentive effects of early decisions and precedents by the Commission not to backdate decisions (whether in their favour or not) except in exceptional circumstances.

The Act requires efficiency

104. Spark has identified a number of areas where the Commission has erred in its interpretation or application of the requirements required of it. Errors of judgment and errors of law have in some cases materially limited the scope for efficient modelling and resulted in aggregate in a draft UCLL price that strains the bounds of s18.
105. Section 18 is concerned with delivering, through regulation, the long terms benefits that competition and competitive markets would otherwise be expected to deliver to end users of telecommunications services in New Zealand - consumers. The role of Telecommunications Commissioner is created to give effect to this purpose. Consumers are harmed by high, static prices. New Zealand consumers are harmed relative to their peers in the OECD and their major trading partners when the prices that underpin their productive services are the highest among those partners. Lower socio-economic groups are most harmed, because just as affordable access to broadband has the power to improve the education and productivity of these groups most, any decrease in affordability is likely to result most directly in their exclusion.
106. That is not to say that s18 requires prices that are equal to or lower than international comparators. But it requires the Commission to be rigorous about ensuring New Zealanders only pay the prices they would have to pay for UCLL and UBA services if those services were subject to competition. The Act and s18 has the act of regulating, of imposing prices, of achieving efficient outcomes for end-users, at its heart – that is its dominant purpose and that should be the dominant purpose for the Commission.
107. Yes, investment incentives, and predictability, and overall confidence in New Zealand’s regulatory framework are also important, and also relevant considerations for the Commission in applying s18. But they can not, and should not, be applied in a way that over-rides that dominant purpose.
108. While the Commission may not have intended to “err on the high side” as it puts it, or to give too much weight to predictability and investment incentives, the decisions it made in the course of this process, in aggregate, have exactly that effect:
- a. Its decision not to learn from the better resourced regulators that are further advanced in their experience with TSLRIC, but to adopt an increasingly out of date application of TSLRIC that its knows provides for over recovery by the access provider;
 - b. Its decision not to correct for, or to attempt to value, what its consultant Professor Vogelsang told it was an approach that would result in a price significantly higher than required by Chorus to recover its costs;
 - c. It’s decision not to enquire further into the appropriateness of its asset valuation methodology when its model produced a valuation more than 3 times the value of Chorus’ actual assets;
 - d. Its decisions to knowingly take a conservative approach to FWA, not to exclude lead-in revenue, and to indicate a preference for backdating without any evidence it would be efficient.
109. All of those decisions were conscious, and were made in the knowledge they would increase the price relative to other choice the Commission had. All were “erring on the high side”, presumably to account for the Commission’s objectives of predictability and investment incentives. To be clear, the Commission is asking end-users to pay a significant premium to Chorus, to invest less in copper going forward, when the purpose of regulation is to ensure they are not required to pay such monopoly rents

110. Some of these choices are not consistent with the TSLRIC pricing methodology, bringing through past costs – by valuing assets that have no future cost at replacement cost or adopting inputs based on past behaviours – or double counting costs cannot be seen to be forward looking.
111. Nonetheless, we accept that some modelling decisions, that clearly operate to increase the price that consumers will pay for the service can be consistent with the section 18 purpose, but only to the extent that this will demonstrably result in greater long-term net benefits to end-users. In other words, a decision to adopt parameters that consciously biases the results to produce a higher price to account for predictability concerns and the potential impact on investment incentives that may result – if it delivers higher net benefit to end-users – is permissible.
112. But s18 operates to place an onus on the Commission, as the regulator, the protector of end-users, to confirm that is the case: to at least attempt to quantify those net benefits. Because the counter argument – that the draft determination has erred on the high side, and has over weighted predictability and investment incentives in a way not permitted under s18 - is so compelling:
- a. The draft UCLL price increase results in a transfer from end-users to Chorus of up to \$1.5 billion over the Commission’s five year regulatory period;
 - b. It represents a social welfare cost of between \$128 million and \$214 million in one year alone, with the effects and cost repeated in each subsequent year, relative to the price calculated by the Commission’s model when WIK adjusts the model for technical errors and to apply the efficiency-enhancing choices the Commission elected not to take;
 - c. Chorus has already gone on record as saying a UCLL price at current levels recovers its forward-looking costs of that service;
 - d. We have operated with a price around \$23-\$24 for a considerable length of time now, without any issues; and
 - e. The draft UCLL price is so much higher than other comparators, it goes beyond the scale of Cullen International’s LLU pricing graph.
113. We do not profess to know the “right” TSLRIC price for UCLL or for UBA. But we do not have sufficient confidence the Commission has even managed to approximate those prices in its draft determinations. There are clear errors, which can be corrected for, and there are design decisions we do not agree with. If the Commission is to confirm those design decisions, much more rigorous evidence that they do, in fact, deliver net benefits to end-users, will be required.

The Analysys Mason model

114. Both Network Strategies, and WIK-Consult have carried out a review of the cost model prepared for Chorus by Analysys Mason. They advise that the model reflects a slightly optimised analogue of the existing actual hybrid copper/fibre access network and its associated current cost. It diverges materially from the requirements of a TSLRIC cost model as required under the Act, and as specified by the Commission’s consultants, failing to comply with the key criteria listed in the TERA November 2014 model reference paper. While this means that it fails to meet the requirements of the FPP process, it is instructive in demonstrating the embedded effect of historic decisions in the construction of the existing UCLL local access network.
115. Chorus (subsequently Telecom) has operated and maintains the existing network, and this network does not reflect an efficient forward looking that would be built today. Chorus’ network has been built, maintained, extended, and, in many cases substantially depreciated over a long

period of Government ownership and operation before and following privatisation. This raises difficult questions of economic efficiency and competitiveness since public policy goals were a key operational driver during much of this period. Equally, there is great difficulty in establishing economic asset values for the actual network in existence today.

116. Following privatisation, the continuing investment over time in the provision of wholesale network services using current technologies will have been conditioned by the scope and scale of the existing network and its operating costs. These path dependencies based on historic investment decisions also require careful scrutiny where the scope and scale of the historic network build has been driven by non-commercial reasons, regulation or political decisions.
117. This uncertainty over the economic value of the actual existing network of course raises a key concern for the Commission which is to ensure that the regulated price gives Chorus the appropriate return on the actual existing network which it could expect if there was effective competition in the market for local access network services, (whatever that return might be), while preserving the long term benefit to end-users of receiving all the economic benefits from paying competitive prices for telecommunications services. One thing is clear however. The economic value of the existing network is not the object of the Analysys Mason model. As Analysys state, their model is designed to use the actual Chorus asset count, with some optimisation to estimate the cost of efficiently building that same network today, and assuming no re-use of assets.
118. The Analysys Mason model, when compared with the TERA model subject to the criticisms and adjustments suggested by our expert consultants, shows the magnitude of the difference between the TSLRIC cost estimate for the existing access network, and the current cost of replacing that network with some slight optimisation. WIK in their comments¹⁰ state strongly that the Analysys Mason model is not estimating the cost of an efficiently engineered copper network and will not derive efficient costs. Instead, the model relies on the re-use of assets of the copper network to build Chorus' UFB networks and allocates the costs of the shared use of these assets using allocation keys. The basis for these allocation keys are not described in the model documentation.
119. Section 7 of the WIK expert report, and section 8 of the NWS expert report set out in detail the reasons that both have independently come to the view that Chorus' models are not fit for purpose to provide an estimate of the TSLRIC price for the UCLL and the UBA services. They do on the other hand inform parties as to an estimate of the current cost of rebuilding the existing network. The Chorus model also does not provide the Commission with any guidance as to the economic value of the existing network, which might assist in determining an appropriate economic return on and of the capital employed in delivering the UCLL and UBA services.
120. The scope and scale of the backward looking network deployment operated by Chorus to provide UCLL and UBA, and the Analysys Mason model estimate of current costs in relation to the actual present network build, even with some degree of optimisation, will not fulfil the requirements of the Act¹¹ to estimate the TSLRIC cost of the network as defined.
121. The TSLRIC cost estimate must represent the return of and on the capital employed which a competitive market would deliver Chorus. This cost estimate does not bear any necessary connection to Chorus' historic network build cost, inferred valuation on privatisation, or current

¹⁰ Section 7 of the WIK Report

¹¹

depreciated historic book value. To the extent, if any, that the Commission's explicit choices around the model specification, together with TERA's modelling approach, assumptions and judgments depart unjustifiably from this standard, the Commission will be subordinating the promotion of competition for the long term benefit of end-users to other objectives. To the extent that this is the case, it will be imposing direct and indirect economic costs on New Zealand.

SECTION B

122. WIK and NWS have reviewed the model prepared for the Commission by its consultants. They support the underlying principles of the model, to assess the costs of a hypothetical operator using modern technologies. However, they note that the model incorporates a number of conceptual deficiencies, parameter choices and technical computational problems.
123. We have not repeated the reports' findings here, rather we focus on additional information and comments to those made by WIK and NWS. The attached WIK-Consult and NWS reports set out, in more detail and greater breadth, the key economic and modelling concerns with the Commission's proposed approach.

Framework for carrying out the pricing review determinations

124. The Commission is required to apply TSLRIC when setting the regulated price for UCLL and UBA and, where choices are required when implementing TSLRIC, make choices that enable it to give best effect to the purpose set out in section 18. That is, it must make choices that result in long term benefits to end user that a competitive market would be expected to achieve. Accordingly, the FPP assessment:
- a. Seeks to set prices that are in the long term interests of end user. The Commission must apply the TSLRIC methodology and, where required to make a choice, make choices that best give effect to the section 18 purpose;
 - b. Shouldn't be diverted from its legal task by applying overlay "rules of thumb" such as predictability and investment incentives. These are a consideration when discretion is required, but cannot replace or constrain the assessment of efficient costs;
 - c. Should only include forward looking costs and avoid double counting; and
 - d. Should consider whether and how its decisions individually, and in aggregate, meet the Act's requirement to maximise long-term benefit to end-users.
125. These principles have not been consistently applied to the draft decision.

The FPP seeks to set prices in the interests of end users

126. The framework within which the Commission is required to set UCLL and UBA prices is largely defined by two legislative provisions that must operate together in a consistent and cohesive way:
- a. Section 19 (read in conjunction with section 18), directs the Commission to make decisions that best facilitates competition and competitive outcomes that are to the long-term benefit of end-users (**LTBEU**) of telecommunications services in New Zealand. It must consider efficiencies when doing so; and
 - b. Schedule 1 of the Act, particularly provisions relating to the Final Pricing Principles for the designated access services. These pricing principles direct the Commission to price the UCLL and UBA services using a Total Service Long Run Incremental Cost (**TSLRIC**) methodology.
127. Together they direct the Commission to set a price based on efficient forward-looking costs. This will promote competition for the LTBEU.

Section 18

128. The Commission must regulate access prices because they are not subject to competition. Its task is to promulgate *ex ante* regulation – to set the future prices for the designated access services - which are based on efficient, costs and most likely to give effect to outcomes that produce LTBEU. The Commission must set an efficient price that facilitates those outcomes that monopoly control of access does not ordinarily deliver.
129. To give best effect to the section 18 purpose, the Commission’s core pricing function is to ensure access seekers pay no more than they would expect to pay in a, workably competitive market. A blanket, one size fits all approach to section 18 considerations does not work. Investment in telecommunications services is important and for investors and, at one level, a stable and predictable regulatory environment can be more attractive. But that is not the only consideration for investors. Investing ahead of the demand curve in innovative services is often without certainty but equally relevant for delivering competitive outcomes. Nor should the interests of Chorus’ investors trump those of investors in other telecommunications services.

TSLRIC

130. The Commission has numerous choices to make when determining how to apply TSLRIC. The Commission must ensure the TSLRIC price it chooses enables it to best give effect to section 18. While considering the choices available to it throughout the TSLRIC modelling exercise the Commission must be guided by the ultimate cumulative impact those choices will have.
131. The Commission cannot close its mind to any available choices if it would be demonstrably more efficient for those choices to be made or those options selected. It is entirely unwarranted, out of balance and unreasonable in the circumstances to assume that an application of s18 that favours one aspect of investors interests (certainty) and one set of investors (those which favour a higher access price) is likely to result in a price (and outcomes) that best gives effect to section 18. We consider the interpretation applied to “predictability” and the weight accorded to that interpretation with regard to ORC and asset re-use to be problematic in that respect.
132. The Act defines the TSLRIC as:
- 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, taking into account the service provider’s provision of other telecommunications services and ... includes **a reasonable allocation of forward looking common costs**. (emphasis added)*
133. This is consistent with what economics would suggest is in the interests of end user – prices that reflect the efficient forward looking costs of the service, including forward looking investment where required. The forward looking costs are important because this minimises the cost to consumers (ignoring past inefficiencies etc.), while reflecting the costs for ongoing provision of service capability and the resource cost to society of maintaining service capability intact.
134. We acknowledge that the TSLRIC definition provides little practical guidance on implementation itself. This recognises that, within the broad requirements of the pricing model, the best implementation of the TSLRIC methodology will depend on the circumstances of the New Zealand market. Of course, the approach will differ between countries and over time as new technologies are available and the nature of the market. This is why we see regulators applying differing settings in different jurisdictions, and amending these settings over time. Accordingly, the Commission is required to make a number of decisions relevant for the New Zealand market and in end users interests.

135. However, the Commission's discretion in the way it applies TSLRC is by no means unfettered. It must exercise its expert judgment and discretion in a manner consistent with the following:
- a. When making these pricing review determinations section 19 requires that the Commission do so in a manner that best promotes competition and competitive outcomes – the purpose set out in section 18;
 - b. It must promote competition for the LTBEU (which is a significant constraint on the efficiencies it should take into account);
 - c. It must consider efficiencies, including (but not limited to) the incentives on investment in new services.
 - d. As an administrative decision maker, the Commission's considerations must be reasonable, based on evidence, judiciously weigh relevant and irrelevant information and apply its expertise to determining the likely outcomes;
 - e. Its powers must be exercised in a manner that is open and transparent and rationally linked to the purpose for which they are granted;
 - f. Its powers must be exercised lawfully – i.e. within the bounds and in accordance with the appropriate legal interpretation of the empowering statute; and
 - g. Its decisions should be proportionate to the harm they seek to remedy and it should act in a manner that is consistent with good regulatory practice internationally.
136. A properly applied TSLRIC methodology is entirely compatible with section 18. The price will reflect efficient forward looking costs, and provide sufficient revenue to maintain the service capability intact. But modelling choices made during a TSLRIC exercise that lock-in inefficiencies are not compatible with section 18. It is therefore of fundamental importance that the way in which the Commission ultimately implements TSLRIC is the most efficient and most accurate approximation of price that would be the outcome of a competitive process. This requires consideration and balancing of **all** efficiencies likely to result from a decision – otherwise the Commission cannot rationally demonstrate that it has met the requirements of section 19.
137. Where a choice that would inevitably restrict the model from producing the most efficient cost (or builds in material inefficiency) it may be unable to give best effect to section 18 and may accordingly be unlawful. Even if one parameter choice, on its own, does not immediately appear to lead to an inefficient outcome, where that choice constrains the Commission's ability to make more efficient choices in other components that could also restrict the Commission's ability to ultimately give best effect to section 18.
138. On the face of it, the Commission accepts the requirements articulated above. For example, at paragraphs 192 to 194 of the draft determination for UCLL it states that it will consider section 18 throughout the process and again before making the overall price decision.
139. However, a further consideration is the potential for an error of law:
- a. When an incorrect interpretation and consequent application of the Act is not remedied in the final determination. For example, we consider that the Commission is not constrained by the words of the Act to apply a MEA for UBA that assumes the current copper FTTN network. If we are correct then the Commission's interpretation of the Act and consequent decision to limit its UBA MEA to one which assumes a base FTTN network is wrong and subject to judicial review and/or appeal on a question of law.

- b. It may also be an error of law if the Commission considers itself limited to make choices because these are consistent with the self-identified objectives – where no such objectives are imposed by or required to give effect to the law. So where for example, without much of an explanation for doing so, the Commission has determined that it should give significant weight to “predictability” and used the concept of “predictability” to exclude other choices available to it that could give better effect to section 18 the Commission is not lawfully applying section 18.

Constraining the assessment of efficient costs through predictability and investment incentive tests

140. The unjustified weight that the Commission has ascribed to “regulatory predictability” and the consequent material impact that has had on the model choices it has made is a material concern to us. In the name of predictability, Chorus’ investment incentives and investor confidence have systematically crept into and dominated the Commission’s analysis. And end-user’s interests in, and benefits from, prices based on efficiently incurred costs have been systematically underweighted.

In applying additional weight to the consideration of predictability and investment incentives, the Commission has incorrectly altered the s18 test

141. Predictability and investment incentives are important, but they are ultimately only one consideration in the process towards setting prices that are consistent with section 18. Job One is to set prices based on efficient forward-looking costs – i.e. prices that would be observed in a workably competitive market. Job Two is to ensure those prices maintain sufficient investment incentives to ensure future supply of the service by the access provider. If Job One is done correctly, Job Two should not require further substantive work. In other words, prices set to recover efficient forward-looking costs should, in themselves, provide appropriate investment incentives.
142. Reading the Commission’s draft determinations, it becomes apparent that the weight of policy, political and public debate about the effect of these regulated prices on Chorus’ investment incentives and investors’ confidence in New Zealand’s regulatory framework has heavily influenced the Commission’s decision-making. The Commission has focussed too much on Job Two, and made a series of decisions that impose material inefficiencies on its models, and substantially increase the prices end-users will ultimately have to pay for voice and broadband services.
143. It is equally apparent that in doing Job Two the Commission has lost sight of end-users’ interests in the Commission’s decision-making – that is, it should only be promoting investment that is demonstrably for LTBEU.
144. The Commission’s draft determinations refer frequently to the need to provide “regulatory predictability”, to “promote efficient investment” and to not “harm investment incentives”. In fact, in describing its approach to applying the TSLRIC standard, these are the only factors the Commission specifically refers to in discussing the matters it will give weight to in determining a TSLRIC price.¹² Further, the Commission references these factors at numerous stages through its draft determinations as guiding determinants of the Commission’s decision-making where it

¹² Commerce Commission Draft pricing review determination for Chorus’ unbundled copper local loop service (2 December 2014), paragraphs 126-145.

has exercised its decision-making powers. Each of those decisions has added material additional cost to the price for UCLL and UBA, contrary to end-users' interests, and in each case the Commission could have made alternative decisions that resulted in lower overall costs, and did not threaten ongoing supply of, and investment in, the services.

145. More fundamentally, the Commission has failed to consider whether the investment it seeks to promote is in the LTBEU and, if it is, whether end-users should pay significant premiums over and above efficient costs to avoid the risk of investment not occurring.
146. We agree that predictability, efficient investment and investment incentives are relevant considerations for the Commission in its application of s18 – because each of them is by definition already caught by s18's direction to the Commission to consider efficiencies in its decision-making process. But they are only a sub-set of the efficiencies to be considered under s18. And by giving disproportionate weight to predictability, the Commission has failed to properly apply the standard set by s18 in a manner that is inconsistent with the Act.
147. The Commission can have regard to these factors when exercising its functions, but it cannot do so in way that results in its taking decisions that are not in the long-term benefit of end-users. That, in a number of individual cases, and in aggregate, is what the Commission has done.
148. Consistent with the approach of the High Court and Court of Appeal in the IPP decisions, s18 provides the relevant guidance, and it is not necessary to read additional objectives into that statutory purpose. Where predictability and investment incentives are important in order to promote competition in the LTBEU, they will be captured by the wording of s18 as it stands. Seeking to put separate emphasis on these concepts for their own sake, where a clear link to resulting benefits for end-users has not been demonstrated, is not consistent with a proper application of s18.

The Commission's use, and interpretation, of "predictability" is misplaced

149. We support the Commission's decision not to apply a test of "reasonable investor expectations". We, like most submitters, objected to the use of that test on the grounds that s18 does not explicitly require reasonable investor expectations to be met for their own sake, and the Act does not permit the Commission to constrain, override or alter the statutory objectives already set out in s18.
150. Those same criticisms apply to the Commission's proposal to place additional weight, or emphasis, on "predictability" and "efficient investment".
151. We disagree with the Commission's use, and interpretation, of "predictability" in the current processes. Predictability, as it relates to a regulatory framework, may be thought of as applying at two distinct levels:
- a. A predicable regulatory framework; and
 - b. The predictable application of that framework to a particular service.
152. Both are laudable objectives that we should strive for in New Zealand's framework and processes. But the approach taken by the Commission satisfies neither of these objectives. In fact, in introducing for the first time a new "emphasis" in how it interprets the defining provision of the Act and our regulatory framework, it manifestly detracts from each.
153. Dealing with the framework first, it is commonly accepted that unpredictable changes in the regulatory environment can harm firms' investment incentives to the extent that they believe they will not be able to recover the costs of that investment and/or earn a normal return on it going

forward. The concern is generally that unpredictable changes and/or regulatory opportunism may expropriate sunk investment once it has been made - leading to a reluctance to make such investment in the future.

154. The Commission cites a number of academic articles on the question of unpredictability, which are directed at the harm that can be caused by a lack of regulatory credibility due to regulatory opportunism or lack of regulatory commitment over an appropriate timeframe, which prevents a firm from recovering its sunk costs and therefore affects investment incentives going forward.
155. There is no credible suggestion that any of the options the Commission has consulted on will result in such regulatory opportunism or expropriation. As Professor Vogelsang rightly points out, all options before the Commission will provide a revenue stream to Chorus that greatly exceed both the costs required for Chorus to maintain its current network and the value of that network.
156. Further, under all options, the Commission will be applying a pricing principle, and a methodology, that it has never before applied in New Zealand, but that has a wealth of international experience and debate behind it. TSLRIC is a living concept, constantly evolving as academics, market participants and regulatory institutions gain an increasing understanding of it, including how it should be applied in the context of services and networks that are being phased out (in contrast to its original objective, as identified by Vogelsang, of producing prices in the context of growing services and markets). Investors and market participants are all aware of this fact, and aware of developing views and implementations of it.
157. The only unpredictable change threatening to expropriate investments in an unforeseen way, is the Commission's alteration of its long-standing approach to applying section 18. This single change sits at the heart of a number of the Commission's critical modelling and design principle choices, which have contributed to a material increase in a regulated price that had remained largely stable for the entirety of its existence, and that laid the fundamental foundation for unbundling business cases and retail pricing. In our view, placing undue weight on predictability in a manner that results in a material "framework shift" may not amount to a proper application of section 18.
158. If the Commission was to continue to apply section 18 in the standard, unaltered way that it has to date, following a transparent and consultative process, predictability and confidence in our framework would be preserved.
159. The same conclusion applies at the individual service level. The Commission has never applied TSLRIC before to UCLL. In fact apart from consulting on TSLRIC principles 10 years ago, the Commission has never applied TSLRIC pricing to any regulated service. It therefore has no prior direct precedents with which it might need to remain consistent in order to maintain "predictability" of UCLL TSLRIC pricing.
160. Finally, we also note the approach taken by the Commission to this question in the Part 4 context, where it concluded that:¹³

¹³ Commerce Commission Input Methodologies Discussion Paper, 19 June 2009, paragraph 2.79. The Court has also recognised that promoting certainty does not override the Commission's obligation to make regulatory decisions, including to reset prices. For example, the Court of Appeal has noted that (*Commerce Commission v Vector* [2012] 2 NZLR 525 (CA) at paragraph 60): "there is a

...a prescriptive approach that minimises uncertainty under current conditions – in other words, “regulatory commitment” – must be balanced against the need for regulation to adapt

...

While still promoting certainty and predictability, the Commission proposes that, where possible, any changes planned to the regulatory regimes implemented under Part 4 of the Act will be signalled and explained in advance to minimise uncertainty.

161. What will be important for predictability and investment incentives in respect of UCLL pricing is for the Commission to take a robust and well-reasoned approach now that is focussed on identifying efficient costs in its UCLL and UBA models and to behave in a consistent and predictable manner as it implements and maintains those models going forward.

162. While the Commission applies predictability, as a constraint, in a number of places in the draft. A particular example is the approach to the adoption of the Optimised Replacement Cost methodology, discussed below.

The FPP models should only include efficient forward-looking costs and avoid double counting

163. In 2002, the Commission defined “forward-looking costs” as:¹⁴

...costs that will be incurred in the future in providing the service. This involves estimating costs on the basis of current and future prices of inputs and given the availability of modern technologies and assets. The aim is to estimate the cost of providing the services in the future rather than the past.

164. In its 2013 UCLL process and issues paper, it defined it as something different:

Forward-looking costs reflect the costs that a network operator would incur if it built a new network today using assets collectively referred to as the modern equivalent asset, which we discuss further below. The costs of these assets are the costs of currently available equipment as opposed to the costs of older equipment that may actually still be in use.

165. There is nothing wrong with the Commission updating its views – as discussed above, we recognise that as international best practice. But in updating its views, the Commission has incorporated into its “forward-looking” definition a hard link between “forward-looking costs” and

continuum between complete certainty at one end and complete flexibility at the other. The question is where Parliament has drawn the line. Clearly Parliament did not accord the Commission absolute flexibility, nor did it require absolute certainty in the regulatory regime. The requirement for the publication of input methodologies was intended to promote certainty in relation to the matters dealt with in s 52T(1). Against that framework, however, the Commission still has to make regulatory decisions, including as to price resetting under s 53P(3)(b). Parliament must have considered that, as the Commission does so, further certainty will emerge. Moreover, the Commission’s extensive consultation obligations under Part 4 are also likely to produce further certainty over time.”

¹⁴ Commerce Commission “Application of a TSLRIC Pricing Methodology - Discussion Paper” (2 July 2002), paragraph 32.

the efficient costs of building an entirely new network, implicitly preventing it incorporating any element of asset re-use. In particular, the last sentence of this definition appears to severely constrain the Commission's options in this respect. We recommend its deletion.

166. More fundamentally, though, a TSLRIC-based price, and forward-looking costs, are supposed to reflect the efficient capital costs involved in supplying an equivalent service today, not of building an entirely new network. TSLRIC and an MEA are tools to help picture an equivalent service that is not constrained by Chorus' historic technology and/or the type and location of legacy assets, so that the Commission can identify the efficient costs of that service and set an efficient price that will apply to the real-world regulated service. It is not about figuring out what it would cost if a new network is invested in/built in 2015, with the costs of that network build factored into forward-looking prices, because a literal approach such as that will by definition include a return on hypothetical investment in a completely new network, built from scratch at today's prices, when that investment will never be made by Chorus or by an alternative operator.
167. Removing windfall gains, or indeed any unnecessary inefficiencies in the prices paid by end-users, is at the heart of TSLRIC, and of the Act, making it an absurdity to adopt a TSLRIC approach that cannot but produce both a windfall and inefficiencies:

- a. A windfall, in that it will compensate Chorus for investments that it will never incur on a forward-looking basis, and where (as recognised by Vogelsang at para 24):

From an actual cost perspective the TSLRIC method currently proposed by the NZCC is likely to be substantially more than needed by Chorus for covering the cost of its copper access network.

; and

- b. Inefficiencies, because it will compensate Chorus for investments that would never be made in a competitive market (including by a hypothetical efficient operator).

168. The very reason TSLRIC is independent of the regulated firm's actual costs is so that efficient costs can be identified, and so that the resulting regulated prices provide the strongest possible cost-reducing incentives for the regulated firm (see eg Vogelsang at para 2).

169. Given our Act also specifically legislates against double recovery of costs within the definition of forward-looking costs, it would be a strange interpretation indeed that permitted the recovery of costs that would not be incurred on a forward-looking basis by an efficient operator, nor by the actual access provider in its future operation of the relevant regulated service.

170. In our submission, the scheme of the Act, including the dominant purposes of both section 18 and TSLRIC to drive out inefficiencies for the long-term benefit of end-users by applying a competitive market standard, suggest the opposite interpretation. That is, "forward-looking costs" should be interpreted in such a way as to assume re-use of existing assets wherever that is more efficient for the HEO than building anew.

171. The rationale for this interpretation is straightforward: in the real world, that is exactly what any operator would do. The possibility of asset re-use was specifically recognised by the High Court in the merits review judgment. In this decision, the Court discussed the Commission's

interpretation of the “hypothetical new entrant test”, and the Commission’s assumptions about what that standard meant for asset valuation. In doing so, the Court noted that:¹⁵

... the Commission also seems to assume that the HNE would be purchasing new assets at their market cost. But in the hypothetical framework the new entrant could purchase used assets. The price it would be prepared to pay in a workably competitive market would be the price of new assets (the replacement cost) less the additional costs of operating the old assets due to their shorter remaining lives, higher maintenance costs, and less efficient configuration.

And further:¹⁶

Much of the Commission’s analysis of the HNET appears to assume that it leads to valuations equal to the costs of replacing old assets with new assets. In our view this misunderstands the proper application of the test and effectively ignores the optimisation and depreciation elements [...]

172. As we have discussed above, it is uncontroversial that the concepts of “TSLRIC” and “forward looking costs” can, and have in a number of other jurisdictions, be interpreted to include a range of different asset valuation approaches, including historic cost and other approaches which permit re-use of existing non-replicable assets. This interpretation is clearly open to the Commission, and in our submission, required of it as the interpretation that best meets the s18 standard.

Consideration of whether and how decisions individually, and in aggregate, meet the Act’s requirement to maximise long-term benefit to end-users.

173. The Commission’s analysis and reasoning on questions of asset valuation refers almost universally to one of three issues that have clearly heavily influenced the Commission’s decision-making. They are:

- a. Predictability and/or orthodoxy;
- b. Efficient investment/ investment incentives/ investor expectations, all in respect of the access provider only.

174. It is almost assumed that decisions that advance these objectives will advance the section 18 purpose statement. And yet, despite previous submissions, including from Spark suggesting the Commission do so, it has not attempted to quantify any of its decisions, or the options before it in respect of any individual decision. This means we, and the Commission, simply do not know if the dynamic efficiency-enhancing benefits it makes its decision on the basis of, exceed the productive and allocative efficiency benefits that a different decision might have produced.

175. We have made our case explaining why we consider the Commission has erred in making these decisions. At the very least that should indicate that these decisions are not straightforward calls – and make the case for some attempt at quantification overwhelming.

176. In the same vein, we note that the Commission’s decisions contain very little in the way of consideration of what the over-arching purpose of these processes is, and how that ties to the section 18 purpose statement, and the long-term benefit to end-users. There is no “check back”

¹⁵ IM Judgment at paragraph 541.

¹⁶ IM Judgment at paragraph 547.

against the over-arching purpose of the section 18 statement, or even any analysis of what a \$4.70 increase in the price of UCLL will mean for end-users and the prices they pay for voice and broadband services (and what the flow-on consequences and costs of that price increase will be for New Zealand).

Technical matters relating to applying the FPP price review model

The UCLF price

177. The UCLF pricing principle sets the UCLF price at:

Either -

(a) the geographically averaged price for Chorus' full unbundled copper local loop network; or

(b) if a person is also purchasing Chorus' unbundled bitstream access service in relation to the relevant subscriber line, the cost of any additional elements of Chorus' local loop network that are not recovered by the price for Chorus' unbundled bitstream access service.

178. The Commission's draft determination concludes that the best view of the word "full" in subparagraph (a) of the pricing principle is that it refers to the "full" loop unbundled copper local loop service (in contrast to the "sub" loop unbundled copper local loop service) (paragraph 116).

179. It also concludes that this interpretation best gives effect to the section 18 purpose statement and fits better with the rest of the Act, because it avoids the regulatory arbitrage that would exist were the alternative interpretation to be taken (paragraph 117).

180. We agree with the Commission's interpretation. In addition to the reasons provided by the Commission for its preferred interpretation, we also note the following deficiencies with the alternative interpretation:

- a. The UCLF pricing principles refer to a "price" for "Chorus' full unbundled copper local loop network". As the Commission notes, there is a readily observable price for the designated service of Chorus's full unbundled copper local loop service which enables the Commission to give meaning to this component of the pricing principle. In contrast, if the alternative interpretation is taken – that the full unbundled copper local loop network is the combination of non-cabinetised and cabinetised lines and something different to the UCLL service – there appears no statutory mechanism by which a "price" for that network can be observed, because that "price" does not correspond to any of the designated services in Schedule 1 of the Act. The word "price" can only be given sensible meaning if the Commission's preferred interpretation is adopted. As the Court of Appeal has recently confirmed:

It is also reasonable to assume, on the basis of the principle of statutory interpretation that the provisions of a statute are likely to be internally consistent;

- b. Leaving the absence of a "price" aside, the alternative interpretation must, presumably, hold that the full network cost from which the UCLF price is derived should come from the model used to determine the UCLL prices. The problem with that assumption is the UCLL pricing principle does not necessarily require this – the minimum it requires is a model of the UCLL service – meaning there would be no guarantee that the UCLF pricing principle under this principle could be carried out. For example:
 - i. While the Commission has chosen to model the entire local loop network, rather than just the UCLL service, it may well have chosen not to. In that case there would have been no way of establishing a UCLF price under the Act if that price was intended to capture a wider set of network elements than the UCLL service.

- ii. While the Commission has chosen to model a copper FTTN network as well as an FTTH one, it did not have to do so. In an FTTH network, there are no cabinets, and therefore no NC-UCLL or C-UCLL distinctions, and as a result, the UCLL price on such a network is the same as the average of the NC-UCLL and C-UCLL services that form the basis of the alternative interpretation. Again, this would leave the Commission with no way of giving effect to the UCLF pricing principle under the alternative interpretation.
- c. Finally, the alternative interpretation also presupposes that Parliament intended the UCLF service to have a price that:
 - iii. Exceeded the forward-looking price for the service (UCLF only uses a small proportion of the frequencies on a copper line. It does not provide the purchaser with access to the copper line. Therefore the efficient price for the UCLF service cannot be the cost of the entire copper line, as that would require end-users of the UCLF service to pay for network elements they do not have access to); and
 - iv. Exceeded the forward-looking price paid for UCLL operators for the full loop UCLL service.
- d. This would penalise UCLF purchasers twice for their choice of input (relative to full loop UCLL), and create a clear incentive for them to purchase UCLL in preference to UCLF. This is the inefficient arbitrage referred to by the Commission in its draft determination. As the Commission rightly notes, any interpretation that creates unavoidable and inefficient arbitrage, as the alternative interpretation does, must be inconsistent with section 18. What is not discussed though is the inconsistency of this outcome (arbitrage leading to increased unbundling) with the very clear Government policy to redirect industry investment and focus onto fibre and away from copper (and in particular copper unbundling). Spark (Telecom as it was then) was precluded from unbundling for a three year period, and existing unbundlers were discouraged from further unbundling by a legislative shift to averaged UCLL pricing, which increased the cost of unbundling by almost 25%. It would be curious policy making to say the least if, alongside these overt policy shifts away from further unbundling, Parliament at the same time created a price imbalance between UCLF and UCLL that forced wholesale unbundling by all RSPs.

181. We support the Commission's interpretation of the UCLF pricing principle as the only interpretation capable of giving a coherent meaning to that pricing principle.

Relativity

182. The Commission is directed by the Act to consider relativity between the UCLL and UBA services when considering the application of section 18 in its decision-making. In its various 2014 papers traversing this issue, the Commission explored the contrasting views of submitters on whether this requirement directs the Commission to promote the business case for UCLL operators, or to promote efficiency.

183. In its draft determinations, the Commission seems to favour the latter goal, of efficiency. We agree with this preference. Efficiency is at the heart of s18, and is particularly important in advancing end-users' interests where the Commission undertakes separate cost modelling exercises for these two services, as it has chosen to do in its draft determinations. This choice brings with it modelling complexity and a real risk of unintended double recovery and thus inefficiently high regulated prices.

184. As we have previously submitted, the simplest answer to satisfying the relativity requirement is to apply a consistent approach to the TSLRIC methodology applied to the services, therefore

ensuring no forward-looking overlap, or double-recovery. Where the Commission chooses to apply the TSLRIC methodology inconsistently, as it has in its draft determinations, the answer becomes more complex: how does the Commission ensure it has worked all overlaps out of the UCLL and UBA cost models if those models apply different technologies? For example, the inherent capabilities of an FTTH network render a number of the network elements modelled in a FTTN UBA model, such as cabinets, SLUBH and cabinet-based layer 2 electronics, redundant. The only pragmatic answer may be to apply downward adjustments to one or both prices to account for this risk.

185. The Commission also correctly rebuts the argument that relativity might require it to benchmark the differential between the UCLL and UBA prices against a real-world purchaser of UCLL services, to ensure there remains an economic incentive on UCLL operators to continue to purchase UCLL services. Put very simply, the Government's commitment to the UFB initiative, and its legislative changes to average the UCLL price (and provide three's notice of this to enable UCLL operators to achieve a return on past UCLL investments to) were very clearly designed to remove any incentive on RSPs to continue investing in UCLL. Even if the Commission attempted to achieve this goal, the irreversible migration to fibre will likely outweigh any Commission efforts.

186. As for the suggestion the Commission should attempt to benchmark relativity against an access-seekers' actual UCLL investments, we note simply that, given the very significant disparity in scale of New Zealand retail service providers, any such benchmark would by definition be the wrong benchmark, and set the wrong incentives, for a significant proportion of RSPs. For example, a relativity benchmark using an RSP with Vodafone's scale would set incorrect incentives for an RSP with CallPlus', or Actrix's scale, or for Spark. And vice versa.

187. While the relativity requirement has less obvious policy rationale now that UBA is priced using a TSLRIC, rather than a retail-minus, methodology, we agree the Commission does need to identify the most sensible meaning of it in today's framework. We agree that the best view is that it is intended as an efficiency reminder.

188. We consider that the primary area where relativity should have a discernible effect arises when considering the effect of backdating on the market. We point out below that investment decisions made on the basis of the best available evidence cannot be undone if the relativities of that investment are reversed with retrospective effect.

Demand: network coverage and demand

189. In determining demand, the Commission has considered:

- a. the geographic boundary of network demand (paragraph 328 onwards and attachment J), and
- b. then; the make-up of that demand within that boundary (HFC, Coax, Mobile, and Satellite) (paragraph 265).

190. These are discussed below.

The model should take in to account end user contributions and subsidies

191. Chorus, as is not uncommon, has received substantial capital contributions towards the cost of its current copper and fibre networks. These contributions have come from:

- a. Central Government (UFB and RBI funding);
- b. Industry (TSO funding); and

c. End-users (contributions to lead-in costs and network extensions).

192. In practice, the network is funded from a number of sources and failing to recognise the various funding alternatives will inevitably overstate efficient costs.
193. In addressing the issue, the Commission notes that the hypothetical operator would, as incurs in practice, require capital contributions to induce it to build part of the network (a “capital contribution”) and/or require end-users to incur some of the costs, such as trenching and reinstatement costs (paragraph 804).
194. Further, the Commission proposes to consider the approach taken by rational, profit-maximising businesses in the real world provide an indicator as to the hypothetical efficient operator’s likely response to the same issues. Chorus receives capital contributions or other people assist with the build of its network for network assets that Chorus does own, and the Commission considers it reasonable to assume that the hypothetical efficient operator would also seek and obtain some contributions and not incur the full capital costs of building the network it would own and operate (paragraphs 805-806).
195. We agree, any HEO would seek capital contributions from end-users and central government in building its network. The model should take in to account all sources of funding for the network in order to estimate the efficient costs. The HEO network is funded from different sources - monthly and transaction charges; customer contributions for network elements provided for outside the STD (such as for lead-ins and network extensions); the TSO; RBI; and UFB – and these all need to be taken in to account.
196. This is because failing to recognise these contributions simply increases the service price for no end-user benefit. For example, a properly specified model would see the service provider recover the cost of efficient investment through customer and third party contributions. Failing to recognise all sources of funding increases the cost to consumers (with consequent inefficiencies) while providing no useful investment signals.
197. As noted by WIK [section 5.3] in its report, regulatory TSLRIC costing approaches take care that the same costs are not recovered twice. Otherwise, access seekers (and retail customers) would pay too high a price for the relevant service. The double recover of costs can have many reasons and sources, i.e. the blurred definition of cost categories, cost allocation rules and explicit double recovery through separate charges. The Commission rightly focusses in the model on removing potential double recovery.
198. In terms of reflecting the contribution in the model, this will depend on the nature of the funding. For example, direct end-user, RBI and UFB funding for network elements should clearly not form part of the modelled cost. Alternatively, arrangements such as the TSO provide no specific funding, but relate to the provision of non-commercial customers. In which case, the model should limit the model to commercial activities to reflect the fact that non-commercial activities are funded elsewhere.

Drawing a boundary around the network to be modelled

199. In order to determine a network demand footprint for the hypothetical efficient operator, the Commission considered where the hypothetical efficient operator would be likely to deploy its network. In applying this principle, the Commission notes that:
- a. The hypothetical efficient operator should meet the coverage requirement that Chorus is obliged to under the TSO. Accordingly, it has used the TSO network coverage as the starting point for where a hypothetical efficient operator would deploy its network, and then considered whether the hypothetical efficient operator deploys further [267]; and

- b. There are some capital costs which a hypothetical efficient operator would not expect to recover in the standard price it receives for its services and an end-user contribution would be required. This may reflect the additional capital cost of extending its network. This occurs in practice where, for example, a subsidy is needed under the Government's RBI to extend the broadband capability of Chorus' network to more remote areas (paragraph 809).
200. The model is based on the preliminary view that: additional premises within the boundary would be likely to be connected by the hypothetical efficient operator (with both capex and opex being incurred by the hypothetical efficient operator), but premises outside would only likely to be connected where a capital contribution was provided by the end-user (with only opex being incurred by the hypothetical efficient operator) (paragraph 270).
201. This means omitting the capital costs of network elements outside the TSO boundary on the basis a customer contribution would be required by an efficient provider, while recognising the demand for dimensioning the network elements within the TSO boundary. The model recognising the opex associated with all assets inside and outside the boundary because the hypothetical efficient operator still owns and maintains the full network (paragraph 808).
202. We support the Commission's proposed approach as a pragmatic way of avoiding double recovery, reflecting the contribution customers make to extend the network. In terms of geographic coverage, at minimum, the affected capital costs relate to those aspects of the network beyond the TSO-derived boundary. For this part of the network, in the absence of statutory obligations or other Government subsidies, an efficient operator would likely seek capital contributions to induce it to extend its network out to otherwise uneconomic/inefficient areas, as well as for the cost of connecting individual properties in such areas to that network.
203. However, the Commission could consider taking the approach further, excluding capital costs from within the TSO footprint. In particular, we believe the Commission could have gone further in drawing a distinction between commercially viable and non-viable areas. The general principle applied by the Commission is that the hypothetical efficient operator would require or seek capital contributions and those capital costs should be excluded from the TSLRIC model.
204. However, the TSO provides a mechanism for funding of non-commercially viable customers. Accordingly, to avoid double recovery, non-commercially viable customers should not be included in network coverage. This approach aligns with the framework of the Act that provides that there be no double recovery and provides a clear demarcation between regulated pricing and provision of telecommunications services to end-users who may not otherwise be supplied on a commercial basis.
205. The statutory framework and Government policy provides a clear separation of commercial and from non-commercial provision of service. The Act provides that the Commission set efficient prices, consistent with the outcomes of a competitive market for the benefit of end users, while While specifically providing for non-commercial activities through the TSO and TDL provisions.
206. Likewise, the Government has established separate funding and policy initiatives to provide for investment in rural and UFB upgrades, leaving commercial markets to operate where effective. This makes a lot of sense from a policy perspective – making the provision of non-commercial services transparent. These can be properly considered and funded. It also avoids the Commission setting efficient price that undermine provision of non-commercial services, i.e. by setting a price that is the interests of end-users where, for example, the cost to expand the network may outweigh the benefits for end-users (because part of the value of an initiative is based on wider social benefits. To fund these policy initiative through regulated prices, with a different purpose and efficiency objectives, would distort investment and demand.

207. The structure of the Act is a clear pointer to the Commission that the STD deals to identify an efficient price for commercial areas/customers. Accordingly, we support the Commission the scope of the network should only be as far as the efficient provider would deploy the network.
208. In terms of demand by TSO customers within the commercial coverage area, we agree with the Commission that Parliament did not intend that voice-only TSO lines be excluded from the TSLRIC calculation. Accordingly, the model should capture demand by lines within its chosen demand footprint.
209. In summary and in terms of applying the Act, this means that TSO customers should be included where they fall within the boundary of the commercial area. However, the network coverage boundary for the purposes of the FPP should extend as far as is commercially viable. In other words, it should set non-commercial lines outside the demand border.

Demand should be the whole market and capture growth

Within the geographic area, the Commission proposes to [271]:

- a. Exclude active HFC connections as it considers it to be a competitive platform and it is unlikely that migration to the modelled network would occur;
 - b. Include UFB networks as being more akin to a replacement, rather than a competitor, to the existing copper network;
 - c. Exclude satellite as not being a close substitute to the hypothetical MEA network; and
 - d. Exclude mobile and non-RBI fixed wireless substitution.
210. However, the model should capture market demand within an area and this means replacement and substitute networks such as HFC. This is because efficient cost are those derived from meeting all market demand and, accordingly, the Commission should model the costs of meeting that market demand. Where there are strong economies of scale and scope, we expect that a competitive outcome price is one where the HEO has won all demand. This means that the demand should be all demand, in much the same as the technology is any technology (within the market definition).
211. While we do not know whether there are strong network economies here, setting demand at total demand point will ensure that prices are efficient. If there are strong economies then the model will have set efficient prices for market demand and, if not, then the price will still be the efficient competitive price (unless there are diseconomies of scale) because the cost will not be much different to a lower demand setting. Further, if the Commission were to exclude this demand, then it would be locking in past inefficiencies from industry approaches and structure rather than the efficient long run costs.
212. Further, as outlined in the attached NWS report, the model incorrectly assumes constant demand over the regulatory period (section 2.5). Regulatory models commonly assume constant demand. However, these models are generally for shorter periods than proposed by the Commission and volumes are adjusted more regulatory (with fewer consequences.)
213. Over the proposed five-year timeframe the population is expected to increase by 312 900, with much of this increase expected to be absorbed through greater densification of urban areas. However, the draft model demand assumptions in essence establish a New Zealand frozen as at April 2014. Accordingly, the model will diverge markedly from actual demand over time. NWS broadly estimate that, correctly for demand problems, would reduce the cost per line by around 9%.

Defining the network (MEA)

214. The Commission needs to define the network that is being modelled. This can't be Chorus because that is inefficient and doesn't reflect the efficiency options that would come out of a competitive market.
215. The Commission has chosen to consider the costs of a hypothetical efficient operator.
216. We agree with the Commission's proposed approach to assess the costs of a hypothetical efficient operator – the Commission should assess the efficient costs to provide the service. These are the efficient costs end-users should face.
217. Chorus' current network is the product of a number of path dependent decisions, and changes in technology or shifts in demand have led to inefficiencies in the current network design. We're also facing a generational change in a shift in technologies as operators start to deploy fibre and wireless based networks – including Chorus. The technology deployed in the network is – by its very nature – backward looking and if used to define the network can't provide any useful investment signal.
218. The Commission needs some way of conceptualising the network that would be deployed by an efficient operator facing all the pressures of a competitive market. The Commission has adopted the concept of the modern equivalent asset (MEA) as a means of understanding the forward looking costs we're interested in [148]. We support the Commission's overall approach.
219. However, in applying the approach, the draft model constrains the efficiency of this network. For example, through limiting the application of FWA technologies and failing to reflect contributions of end users and RBI/UFB subsidies. These difficulties are discussed below.

The draft model artificially constrains assessment of efficient UBA technologies

220. The Commission's draft determinations artificially constrain its choice of MEA in two material respects:
- a. In relation to UBA, the Commission constrains its choice of MEA to one technology, by reading in a legislative "presupposition" that any MEA for UBA must utilise a copper access network; and
 - b. In relation to UCLL, the Commission constrains the use of a more efficient technology – Fixed Wireless Access – to only those areas covered by the RBI scheme.
221. In so constraining itself, the Commission has impaired its ability to achieve the purpose of the Act and carry out its TSLRIC exercises properly. We discuss each of these constraints below.
222. For UBA, the Commission says that it is legally required to take Chorus' local loop network as a given, and presuppose that the MEA of the additional components would exist on Chorus' network.
223. The Commission's legal analysis of why it is required to make these decisions isn't clearly set out, but it appears to be based on its view that:
- a. the wording of the UBA service description together with the "staggered set of services" set out in the Act means that Chorus' existing copper access network is the network "presupposed by the service description in the Act"; and
 - b. TSLRIC applies to the "additional costs" only, and therefore must be based on the existing underlying UCLL network.

224. The Commission states, at paragraph 227 of its draft UBA determination in respect of MEA choice:

...we consider that, for the UBA pricing review determination, MEA principles are only relevant to the “additional costs” component of providing the UBA service (which is the “UBA increment”), and that we must presuppose that the MEA of those additional components would exist on Chorus’ copper access network.

225. We disagree. We consider that the Commission has wrongly interpreted the Act. It is an error of law to interpret the Act as dictating or constraining its choice of MEA for UBA. There is nothing in the words or scheme of the Act that suggests the underlying access network must be taken as a given when the Commission is modelling the additional costs involved with providing UBA over that network.

226. While it is correct to state that the service the Commission must construct a TSLRIC model for is “the additional costs component of providing the UBA service”, this does not limit its choice of MEA for those additional costs in any way. There is nothing in the words of the Act that either requires that the Commission use the MEA modelling tool or dictates or constrains the Commission’s choice of MEA. In fact, the only presupposition that exists in the FPP is that these “additional costs” must be added to the “price” for the designated access service termed “Chorus’ unbundled copper local loop network.

227. UBA is a service comprised of both UCLL and additional costs. It is logically inconsistent to model up a series of layer one costs and then abandon that entire model when seeking to identify and model up the additional components. The most logical approach to ensure that the UBA price properly identifies the additional costs and achieves appropriate relativities to the modelled UCLL is to use a consistent approach to the underlying MEA for both services.

228. It is, therefore, entirely open to the Commission to select whatever MEA it considers best meets the s18 purpose statement for those “additional costs” (and having regard in this case to relativity). If, for example, the Commission determined that a hypothetical efficient operator would choose to supply the UBA service using fibre electronics in some areas and a mobile bitstream service (which would assume a FTTH/FWA access network) there is nothing in the Act that would prevent that.

229. In presupposing a technology constraint on its choice of MEA, the Commission is locking in Chorus’ existing network and technologies, and all of their inefficiencies. In so doing, it is restating its exercise from one of incentive-based regulation to one of rate of return regulation, but with a replacement cost network (and all of the valuation windfalls that provides). Not only is this constraint not present in the Act, it is manifestly inconsistent with it.

230. The Commission provides no real explanation for where this “presupposition” comes from. One answer may be the reference to the price for Chorus’ unbundled copper local loop network. The problem with that answer is the technology with which that price is arrived to is subject to the same TSLRIC exercise as the UBA service – that is, there is an MEA choice for the Commission, and so the technology on which the price for “Chorus’ unbundled copper local loop network” is based on is entirely uncertain. If Parliament did not want to presuppose the MEA used for the Commission pricing the UCLL service, why would it then direct the Commission to use this (technology neutral price) as one half of the UBA price, and then presuppose the UCLL technology the second half of the price is based on?

231. If Parliament had intended such a significant constraint on the Commission’s MEA choice, it would have recorded that intent expressly. And yet it did not. In fact, it did not even direct the Commission on the question of whether to undertake an MEA exercise or not.

232. The only other rationale we can find in the Commission's documentation for this constraint comes from Dr Every-Palmer's 12 March 2014 advice to the Commission, where he considers MEA options for the UBA services and states (at paragraph 29) in relation to the "presupposition" option that:

There is some merit in the argument that this approach is required by the UBA FPP. For example, suppose that a fibre-to-the-home (FTTH) MEA is used in place of the current local loop for the purposes of determining the UBA FPP price. As I understand it, this may imply negligible additional costs for UBA. As well as tending to make unbundling uneconomic this may prevent Chorus from earning a reasonable return on its UBA assets even if it was providing a highly efficient service on the current network.

233. We assume that Dr Every-Palmer's "understanding" comes from advice he has received from the Commission. In this respect, we note:

- a. We are not aware of any evidence to support Dr Every-Palmer's understanding, that the costs of the UBA increment using an FTTH MEA may be negligible, and conclude it is likely to be incorrect;
- b. It is entirely concerned with actual returns to Chorus and to UCLL operators. In respect of the latter, we acknowledge that relativity does encompass some consideration of UCLL economics, but this is a matter to be considered later on in a TSLRIC exercise (most likely as an adjustment if any is required) and not as a means of choosing the most appropriate MEA. In respect to the former, we again note that we have seen no evidence whatsoever to lead us to believe any TSLRIC price of any UBA MEA would result in Chorus not receiving a return on its actual investment (particularly given the fact it has enjoyed retail-minus pricing for this service until very recently). Further, we note that, again, as we are not concerned with rate of return regulation, this would at best be a matter for the Commission is consider at the end of a TSLRIC process – as an efficiency check – rather than as a precursor for the MEA choice.

234. It is an incorrect interpretation of the Act to say that the service description in the Act constrains the Commission's choice of MEA in one case (UNA) and not the other (UCLL). The MEA involves considering the efficient cost today for an equivalent service, unconstrained by Chorus' (or end-users') historic technology choices, but capturing the "core functionality" of the regulated service. It is a tool to establish efficient costs of the regulated service, consistent with section 18. Yet by limiting itself to the legacy underlying network it is failing to in fact properly abstract to an efficient network and so has failed to properly give effect to TSLRIC.

235. The above error has led to a failure to properly consider which MEA best meets section 18 and the Act's definition of TSLRIC - a further error of law. Ultimately, the Commission's mistaken interpretation and application of the Act has meant that it has failed to adopt a modelling approach that best promotes (or is better at promoting) section 18.

The model does take full account of viable FWA technologies

236. When compared to its treatment of FTTH, FTTN technologies in its draft models, it is clear the Commission has exercised considerably less focus on FWA modelling. The Commission has applied a number of simplifying assumptions that dramatically constrain the use of FWA with little in the way of reasoning.

237. The Commission's view on the legal/regulatory framework for its UCLL MEA choice is that:

- a. Its choice of MEA is driven by the "core functionality" of the UCLL service - ie the ability to provide voice and broadband services to end-users (paragraph 529).
- b. It will give weight to technologies that provide network features such as point-to-point and the ability to unbundle at layer 1 when selecting the MEA, but these factors are not determinative (paragraphs 524, 530). For example, less weight is given to the ability to unbundle in areas where unbundling is unlikely to be feasible.
- c. FWA meets the Commission's definition of core functionality and is therefore eligible for consideration as the MEA for UCLL (paragraph 534).
- d. Although FWA meets the core functionality of UCLL and would likely cost less to deploy than fixed technologies, the scope of FWA should be confined to the current and projected RBI FWA footprint because (paragraphs 524 and 531):
 - v. expanding the FWA boundary may be "inconsistent" with the observed network roll-out in New Zealand (ie based on "operator strategy", FWA would not be deployed nationwide by a hypothetical efficient operator); and
 - vi. in areas outside the RBI FWA footprint, unbundling is more feasible and greater weight should therefore be given to technologies that can be unbundled.

238. In our view the principles established by the Commission are consistent with section 18. The problem is that it has not properly applied them. In particular, it has been directed by ill-considered views of observed operator strategy, instead of rigorously assessing the extent to which a hypothetical efficient operator would use FWA in areas unlikely to be unbundled.

239. By applying the observed network roll-out approach, the Commission has essentially constrained itself to the existing RBI footprint in a way that means it has failed to properly consider the extent to which FWA may be adopted by an efficient operator:

- a. As the Commission has identified elsewhere, what is important is identifying the most efficient means of supplying the UCLL service in a way that abstracts from the existing network.
- b. Although observed operator behaviour can provide an insight into the choices that may be made by a hypothetical efficient operator, the Commission's (and TERA's) analysis of "operator strategy" is essentially a description of the decisions made by incumbent operators as part of the planned fibre and RBI footprints - which are a product of existing contractual arrangements and subsidies provided by the Government. Rather, in relation to FWA, the key factors that can be taken from current operator behaviour are that:
 - vii. for non-urban areas, an hypothetical efficient operator is likely to seek and receive Government support and/or end-user capital contributions to fund the extension of its network to serve those customers; and
 - viii. the extent of FWA that would be deployed by the hypothetical efficient operator would not be less than the current RBI footprint.
- c. Accordingly, current real-world UFB and RBI do not necessarily shed any helpful light on the extent of FWA that a hypothetical efficient operator would seek to deploy in the absence of Chorus' existing network footprint. As the Commission has pointed out elsewhere (see eg paragraph 150), the real world is only relevant if it is broadly efficient.
- d. Just as it has done with the footprint of Chorus' existing copper network, the Commission should carefully consider what an efficient approach might be, and be ready to depart

from observed arrangements where it would be more efficient for a hypothetical operator to deploy different technologies and different layout arrangements. Instead, the Commission appears to have relied on TERA's analysis of the strategies of existing operators without considering whether that approach is efficient and consistent with the hypothetical efficient operator framework it has established.

- e. In effect, the Commission has made a pragmatic decision to constrain itself to the existing RBI footprint, which the Commission has itself identified is conservative. Given the evidence of costs put forward by TERA shows FWA is considerably cheaper (including almost \$2000 cheaper per customer in urban areas),¹⁷ there is strong evidence that the pragmatic and conservative approach is not efficient as required by section 18.

240. In any case, FWA based access is an increasingly mainstream means of providing voice and broadband access and a reasonable option for service providers. FWA technologies and deployments are able to provide underlying wholesale connectivity over which service providers can provide services to end users (voice, applications, internet access). For example, [**JSPKCI**. Vodafone's RBI network supports a wholesale access service and there are a number of implementations overseas where multiple operators are providing FWA broadband services over shared platforms.

241. There is no feasible rationale for limiting the use of FWA by an HEO to those areas where the Government has subsidised deployment of RBI cellphone towers. No operator would make technology decisions on such a basis, let alone an HEO attempting to manage costs efficiently. Rather, that HEO would apply a cost/performance trade-off to determine which technology it used where.

242. The NWS has identified that, based on relative efficiencies, FWA could be extended beyond RBI areas to replace estimates for each ESA within Zones 3a, 3b and 4. NWS analysis is weighted towards more sparsely populated zones with no unbundling and, accordingly, likely to overstate the costs. The results should be regarded as an upper bound for all zone 3 and 4 areas.NWS

243. In effect, the Commission has made a pragmatic decision to constrain itself to the existing RBI footprint, which the Commission has itself identified is conservative. Given the evidence of costs put forward by TERA shows FWA is considerably cheaper (including almost \$2000 cheaper per customer in urban areas), there is strong evidence that the pragmatic and conservative approach is not efficient as required by section 18.

Applying the unbundling constraint

244. On the influence of the ability to unbundle, the Commission is effectively using the concept of "unbundleability" to constrain the choices of technology and optimisation that can be applied across its hypothetical network to determine the cost of the service. This ignores the hypothetical nature of the exercise the Commission is directed to undertake, and its goal, which is to find the price that Chorus would receive for the UCLL service in a competitive market:

¹⁷ 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 30.

245. We agree that the MEA does not need to replicate the functionality of the existing network/services. The question is how a hypothetical operator would efficiently deliver the "core functionality of the service" - ie how it would supply voice and data services today (see eg paragraph 529). Further, the MEA does not need to be able to be unbundled in the same way as the existing network. The key is for the MEA to be capable of allowing access seekers to provide voice and broadband services. Markets are not defined by precise analogues, they are defined by substitutes.

246. However, we are not comfortable with the principle that unbundability should be given greater weight (and count against FWA) in areas likely to be unbundled, because the fact a particular "unbundled boundary" has been arrived at using past UCLL prices is not relevant to the exercise of establishing the price that would be received for UCLL services in a competitive market made up of substitutes. That said, even assuming this principle is correct, the Commission has not rigorously applied that principle.

247. Instead, the Commission has adopted an approach which is not consistent with identifying efficient forward-looking costs.

a. The Commission's definition of forward-looking costs refers to costs that will be incurred in the future in providing the service (see eg paragraphs 76-78). It is not consistent with this definition to select an MEA that provides unbundling capacity where that comes at additional cost and the relevant parts of the network are very unlikely to be unbundled - this effectively amounts to building costs into the model that are highly unlikely to be incurred in the future in providing the service, and does not amount to a correct application of TSLRIC.

ix. Similarly, incorporating capacity into the hypothetical model that is very unlikely to be needed in the future is not consistent with promoting efficient investment going forward (which the Commission has identified as an important consideration - see eg paragraphs 138 onwards).

x. The Commission's decision not to expand the scope of FWA beyond the RBI footprint builds redundancy into the network, which is not efficient, and is not what a rational, profit maximising operator would do (which the Commission has identified as key characteristics of its hypothetical operator - see for example paragraph 158).

248. In summary, the key question remains: how would the efficient operator supply equivalent services today? In circumstances where:

a. FWA meets the core functionality of the UCLL service (UCLL draft decision at paragraph 534);

b. the Commission has correctly recognised that the efficient operator would make decisions to minimise costs (UCLL draft decision at paragraphs 152 and 154); and

- c. TERA has identified that FWA is likely to be cheaper than FTTH for both urban and rural areas (and significantly cheaper in the case of rural areas);¹⁸

there is no evidence to support the position that the efficient operator would restrict its use of FWA to the existing RBI footprint (and the Commission itself has recognised that this is a conservative approach to the use of FWA - UCLL draft decision at paragraph 524). Instead, the better position is to conclude that an efficient operator would use FWA to a greater extent than the RBI footprint.

The most efficient technologies

249. However, in selecting the technologies, the Commission has preferred:

- a. Nationwide deployment over a FTTN network; and
- b. FTTH and FWA deployment.

250. The Commission proposes that operator strategy is important in selecting MEA. We agree that, while not definitive, operator strategies provided a pointer to competitive options and industry trends – key to understanding the investment signals it's seeking to send.

251. The operator strategies we're seeing are that operators are able to take different technologies in regions. Spark has built interfaces for fibre, copper based and fixed wireless access networks.

252. Further, other RSPs are building to these interfaces as well as HFC and unbundled networks. For example, RSPs already have (or are building) different Chorus access services, to different LFCs networks and services, for layer 1 connections from a number of wholesale providers. RSPs do not necessarily operate on a national basis. Chorus, itself, operates multiple networks and proposed in 2014 that RSPs connect to regulatory and commercial services.

253. The practical reality of today's market is that operators are not limited to single national networks, operators routinely connect to the best network that meets business needs.

254. While current multiple networks connections are, to a degree, path dependent. What they do suggest is that an efficient operator would connect to the lowest cost – fit for purpose – access network in order to provide services to customers. Accordingly, the Commission shouldn't limit its assessment to national networks. The Commission should adopt a regional approach, as suggested by WIK, where the lowest cost for a particular region is adopted. In practice, this could be the lowest cost network by region.

255. Further, TERA's model is capable of assessing the respective costs of an FTTH and FTTN network on an MDF by MDF basis. WIK informs us that, in some exchange service areas, FTTH is cheaper, and in others FTTN is. An HEO acting rationally would consider deploying both technologies (alongside FWA) if it resulted in material cost savings. The Commission, though, makes its MEA decision on a nationwide basis, without considering or quantifying the potential benefits, of a more granular approach. At the very least, a more granular approach should be

¹⁸ 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 pages 29 and 30.

taken to inform the question of whether a downwards cost adjustment is necessary to the Commission's modelled FTTH/FWA network cost.

The model should recognise RBI and UFB contributions

256. As above, the Commission proposes to recognise capital contributions in the model. The Commission notes that Chorus receives capital contributions or have other people assist with the build of its network for network assets that Chorus does own and considers it reasonable to assume that the hypothetical efficient operator would also seek and obtain some contributions and not incur the full capital costs of building the network it would own and operate (paragraph 806).
257. Further, there are some capital costs which a hypothetical efficient operator would not expect to recover in the standard price it receives for its services. This may be because the additional capital cost of extending its network to additional end-users would be so high that it would not expect to be able to charge and receive a price for the service that could recoup that cost. This occurs in practice where, for example, a subsidy is needed under the Government's RBI to extend the broadband capability of Chorus' network to more remote areas (paragraph 807).
258. We support the principle, the Commission should remove contributions and funding from other parties. However, the draft models do not properly account for RBI and UFB contributions.
259. TERA's model appears to make some allowance for the Government's contribution. NWS has identified an allowance of between \$13.7 million and \$15.8 million in the model for what it interprets as RBI grants. There is no breakdown of these figures or how they were arrived at, but they do not seem to match the public sums involved in that program.
260. A summary on the MED website suggests the RBI subsidy is applied to substantive elements of the access network (the estimated cost of Chorus' RBI work is in the range of \$280-\$295 million, with Chorus contributing 15-20 per cent of the cost). In particular, the funding provided for Chorus:
- a. Chorus is laying about 3350km of fibre by the end of the Rural Broadband Initiative in 2016
 - b. Installing or upgrading about 1200 new broadband cabinets
 - c. Enabling more than 40,000 lines in rural areas to access broadband services that had no previous access
 - d. Connecting more than 1000 rural schools to fibre
 - e. Connecting 154 new Vodafone cell sites to fibre
 - f. 50 hospitals and integrated family health centres will have the benefit of 100Mbps fibre connections
 - g. Connecting 183 rural libraries to fibre.
261. The total cost of subsidy runs to \$300 million over six years, with the bulk of that (\$236 million) granted to Chorus, with a further \$150 million subsequently announced (but not yet awarded) by the Government. There is no corresponding allowance in TERA's model for UFB contributions.
262. Clearly the RBI subsidy applied to significant parts of the access network and the subsidy should be reflected in the model. The Commission should recognise the RBI subsidy wherever it

applies to the access network. However, The Chorus RBI subsidy is for upgrades and replacement of the access network, and accordingly applies to the costs of the UBA service (DSLAMs), and routes, fibre, cabinets and backhaul elements from the asset base.¹⁹

263. Further, the Commission should also reflect the RBI subsidy the FWA model - i.e. the costs for access to the towers which are net of the subsidy – and UFB subsidy for the access network. We note that, while the Government’s \$929 million of UFB contributions to Chorus are not expressed to be in the form of grants, there is no interest or dividends payable by Chorus in relation to these contributions until 2025, and debt repayments are not due to commence until 2025 either. Given these extremely favourable terms, and the very long-term nature of the associated liabilities, for the purposes of regulatory modelling we may assume this funding is of the nature of a grant.

264. Assuming the HEO would receive a similar per-premise passed contribution to that received by Chorus (\$1118) NWS recommends the Commission calculate the extent to which the HEO would, acting as a rational commercial entity, deploy FTTH, and apply this per-premise subsidy to the remaining premises served in the model by FTTH to calculate the size of the government contribution the HEO would require. NWS estimates this to be in the range of \$800 million.

Network optimisation

265. The Commission has adopted a modified scorched node approach to network optimisation, which it notes is a common approach taken a number of other regulators.

266. We support the Commission’s choice, but note the following principal concerns with the Commission’s application of this approach to the UCLL and UBA models.

267. WIK sets out a number concerns with the models approach to network optimisation in its report, and recommends a pragmatic way forward for the modelling. [not clear where we support WIK and when we don’t.]

UCLL optimisation

268. Our principal concerns with the approach taken by the Commission to optimisation of the network underpinning the UCLL service are:

- a. Incorrect exchange classifications. The Commission notes that, by accepting the number and location of Chorus’ existing network nodes, it is acknowledging the real world investment decisions made by Chorus. If it is to take this approach, though, it must satisfy itself that each of the node locations supplied by Chorus are, in fact, what they say they are. Our cursory examination of the nodes classified as “Exchange” identified the following examples of what are clearly not “exchanges” (coordinates are in the top left of pictures). For example:

¹⁹ while the subsidy was directed towards the cost of fibre and cabinets, clearly the business case deploy DSLAMs would implicitly include DSLAM costs (even though these weren’t listed as funded items, it’s not possible to divorce the elements of the commercial arrangements

xi. "SB" exchange



xii. "MKJ" Exchange:



xiii. "MMVG" Exchange:



- b. Inadequate optimisation of exchange boundaries. When the majority of New Zealand exchanges/nodes were deployed, design targets for copper loop length were very

different to those of today. Accordingly, even if not optimising the number and location of these nodes, an HEO would still efficiently optimise the boundaries of its exchange service areas. In not endogenously allocating access lines to exchanges in an efficient way, the Commission has imported unnecessary inefficiency into its model. The Commission has taken this approach when modelling cabinet area boundaries, and should apply the same approach to exchanges.

- c. We suspect that TERA's shortest path algorithm is less efficient than it could be. Although we do not have much information to work on, we understand that TERA's shortest path algorithm models the shortest path between a customer premise and its local exchange. This approach may not result in the most cost efficient access network because it does not optimise for trenching cost. The correct approach is to use an augmented shortest path algorithm. We are unable to confirm whether TERA has applied such an approach, but if not, WIK has advised that TERA's model will be likely to significantly overestimate the required trench length, and therefore cost.

UBA optimisation

269. Our concerns in relation to UBA are:

- a. No optimisation of FDS numbers or locations. There is no consideration or analysis in any of the documentation we have reviewed of whether, and if why, the existing UBA FDS node location (and number) are optimal. These are assets we would expect to see optimised even using a modified scorched node approach. It may be, for example, that less or more Ethernet switches would reduce underlying network infrastructure cost. WIK notes that modern bitstream networks use DWDM ring topologies to concentrate DSLAM backhaul links and reduce these infrastructure costs. These issues have not been considered by the Commission or TERA, which have instead accepted and reproduced the historic network topology of Chorus, including any inefficient costs that may come with that topology.
- b. Non-UBA traffic not considered. In designing a UBA network, optimisation requires modelling of network nodes with sufficient capacity and an efficient connecting trench network – typically this will be in the form of a physical ring topology. The sizes of the nodes, and of the connecting backhaul links, will in large part depend on traffic flows and volumes. As far as we can see though, TERA has only optimised UBA node locations and backhaul connections using a shortest path algorithm, and considered only FDS traffic (and has not, for example, considered traffic from Chorus' Tail extension Service).

Lead-ins

270. Similarly, as with other contributions, the Commission must recognise in its models the significant contribution made by end-users to lead-in costs. As WIK notes, lead-ins represent approximately 26.3% of fibre network capital costs, all of which Chorus is compensated for.

271. WIK note the draft model includes lead-ins although the model provides a setting that these can be excluded. As WIK note, lead-ins represent around 17.1% of copper network costs and 26.3% of fibre network costs. Accordingly, lead-ins comprise a significant proportion of the network.

272. These costs shouldn't form part of the model. The lead-in is currently funded by the end-user. The STD service description specifically excludes the lead in from the service:²⁰

2.8 The UCLL Service specifically excludes:⁵

...

2.8.11 Installation of new copper loops between the Exchange and an End User's premises or installation of new service leads at an End User's premises;

273. Further, an HEO would not face any of that cost. Just as it is common practice today for customers of electricity and gas providers to pay for lead-ins, so it is common practice for end-users to pay for telecommunications lead-in infrastructure.

274. Chorus' current lead-in policy for new properties, for example, requires an end-user to:

- a. Provide an open trench within which a lead-in can be laid, and pay any reinstatement costs necessary;
- b. In the case of a standard installation, pay \$195 for the installation of a lead-in;
- c. In the case of a non-standard installation, pay \$195 for the installation of the first 100m of a lead-in, plus time and materials for any additional distance; and
- d. Sub-dividers for sub-divisions of 4 or more premises must provide an open trench and reinstatement and contribute \$900 or \$1600 per premise (or, where outside Chorus UFB areas, cost plus margin for non-standard deployment, i.e. where there are large lot sizes or material network augmentation is necessary).

275. A separate STD connection charge applies for subsequently connecting the lead-in to the network.

276. An HEO would require similar contributions from end-users. TERA's model contains an option to exclude connection fee revenues, but elects not to do so, and does not even consider whether lead-in costs should be excluded. The Commission's model currently ask end-users to, effectively, pay twice for the same infrastructure. This is a significant over-recovery the Commission must address.

The proposed network deployment does not reflect an efficient operator

277. Further, the Commission has also adopted a number of parameters and inputs that fail to reflect those you would expect to see adopted by an efficient provider. These are considered by WIK and NWS in their reports. The Commission's proposed model:

- a. Understates the capability of the FWA technologies. FWA technologies are able to support significantly more customers than proposed;
- b. The model doesn't consider efficient levels of network sharing. An efficient operator would take significantly more use of sharing opportunities;

²⁰ <http://www.comcom.govt.nz/dmsdocument/8726>

- c. Aerial deployment;
- d. Trenching costs overstated;
- e. Equipment prices overstated.

278. As noted by WIK, there are such a significant methodological errors that the Commission needs to re-consult/review to obtain the data necessary for it to be able to determine efficient inputs based on a review of the market.

Dimensioning the FWA network

279. Even where FWA technology is used, the model does not appear to use the most efficient FWA technology available, or to model its coverage correctly.

280. Whereas the model documentation suggests that LTE advanced has been used, the peak throughputs used to determine the maximum number of users that can be served by each cellsite appears to be that associated with a single sector of a native LTE site.

281. Further, whereas the model documentation assumes the HEO uses LTE advance provided over 2x20MHz of spectrum in the 700MHz band, the coverage areas used in its model are designed for delivery of 3G services using higher frequency spectrum bands. The Commission acknowledges this in its draft determinations, but makes no attempt to correct for it.

282. NWS conservatively estimates that in wrongly constraining the geographical boundary for FWA use, and in failing to correctly model FWA technologies and coverage, the Commission has overstated non-urban UCLL prices by at least 37%. Even that 37% is likely to be overly conservative, as NWS has limited its modelling to those exchanges services areas where no physical unbundling has occurred – a limitation that an HEO would not apply to itself.

The model does not appropriately recognise network sharing

283. While the Commission's UCLL model recognises some forms of network sharing (in particular, it recognises sharing of underground infrastructure between the core and the access networks, and sharing of overhead infrastructure with lines companies) it does not adequately represent the level of efficient network sharing a hypothetical operator would achieve if it were building a new network today.

284. WIK provides a number of examples of inefficient treatment of internal and external sharing in its report, which we summarise below:

- a. Sharing of FWA/SLUBH cables in feeder network. FWA, sub-loop backhaul and core fibre cables (each modelled individually in the Commission's model) can be combined into a single fibre cable where they share the same street segment. Combining these individual cables into one larger cable has several cost advantages, including lower cable cost, lower jointing costs, lower subduct costs and ducting/trenching costs. WIK also notes that the Commission's model currently assumes FWA and SLUBH cables will always be deployed underground, even where the access network utilises overhead infrastructure in the very same street segments. An efficient operator would use that overhead infrastructure for access and feeder network assets (we accept, as does WIK, that core network assets would not ordinarily be deployed overhead).
- b. Sharing of underground infrastructure with external infrastructure owners. The Commission's model assumes the hypothetical efficient operator shares overhead infrastructure with external parties (in that case, lines companies) but provides for no such sharing of underground infrastructure. It seems obvious that an efficient provider

would seek to share significant parts of all of its passive network – not just aerial deployment. The Commission’s rationale appears to be a lack of evidence of significant underground infrastructure sharing occurring in New Zealand. That should not of itself determine this matter - Chorus’ past practices are irrelevant in this exercise. WIK note that, in its experience, other regulators assume between 5% and 30% cost trenching reductions as a result of external underground infrastructure sharing. In a New Zealand context, we see increasing evidence of this occurring:

- i. Lines companies and other infrastructure owners are increasingly collaborating with each other and with local government to coordinate trenching and to encourage more trench sharing. Vector, for example, is required to spend at least \$13 million a year on undergrounding its network, and has agreed to work with Auckland Transport and Chorus to implement a “dig once” policy covering electricity lines, telecommunications cables, street lighting, pavement upgrading and streetscaping projects.²¹
- ii. In new sub-divisions, it is common practice for the developer to provide trenching – which is used by all utility providers. This inevitably results in significant sharing and means all major infrastructure owners must now be comfortable with trench sharing in practice. Standards New Zealand’s Land Development and Subdivision standard promotes such sharing for example; and
- iii. Chorus, itself, has acknowledged this trend, noting in its 2013 Half-year report that it had spent approximately \$1m on “UFB Synergy work, where elements of communal network build were brought forward to align with work being undertaken by other network or infrastructure owners”.
- iv. Spark is involved in an increasing number of trench-sharing projects with a number of other utilities, and expects this practice to continue to increase in prevalence. At the time of writing this submission, we are actively involved in [**SPKRI**]
- v. Spark and Chorus already share a number of fibres within shared cables in Chorus’ transport network. This sharing arrangement was the result of Chorus’ demerger and is an example of the type of arrangement that might not have occurred in a market with a single SMP operator, but would occur in a competitive market. We expect this arrangement will, over time, lead to increased trench sharing between the two organisations as links require replacement or augmentation;

285. Further, Network Strategies notes the recent launch of a fibre network in Ireland by ESB (an energy company) and Vodafone that has at its core re-use of, and sharing with, electricity network assets.

286. Finally, we note that, whereas utility operators in New Zealand have, to date, had to deal with a telecommunications network operator (Chorus) which is as a default wary of or unwilling to consider any form trench sharing, in our scenario we would have an HEO that would be proactive

²¹ Vector.co.nz/undergrounding

in sharing its network deployment plans, and inviting those utility operators to coordinate with it in order to defray costs for each of them. In that scenario, we are confident there would be a significant degree of sharing implemented. The Commission notes, for example, in its draft determination (at paragraph 682.1) that there is no mandated duct access in New Zealand, and states this contributes to its decision not to consider re-use of existing assets in its model and valuations. In our scenario, the HEO would voluntarily promote duct access on a reciprocal basis at the very least.

287. In light of increasing acceptance by New Zealand infrastructure owners of underground infrastructure sharing, it seems obvious that an HEO would achieve a level of sharing in its underground network. The question is what is that efficient level? We assume, from the lack of any such sharing in its model whatsoever, that the Commission did not receive reliable evidence from Chorus or the LFCs of existing New Zealand rates of sharing. This leads us to the conclusion that the best evidence for this is likely to come from international experience – for which WIK has indicated a range.

The model understates the degree of aerial deployment

288. The Commission's UCLL model uses information from electricity lines companies (EDBs) to inform its assumptions as to the proportion of aerial infrastructure an HEO would deploy:

- a. It calculates a weighted-average percentage of EDB customers that are served by aerial infrastructure, and uses this to determine the percentage of aerial lead-ins used in the model (49%); and
- b. It calculates the percentage of EDB low voltage networks are deployed using aerial infrastructure (51%), and uses this to help inform its decision as to the percentage of distribution cable that would be deployed aerially (it decided on 36%).

289. We support the Commission's approach and conclusion as to lead-ins. Network Strategies has been able to replicate the Commission's results, and we agree that EDB's actual practices are the best indicator we have of how an HEO would approach this question.

290. However, we are concerned at the approach the Commission has taken to calculating the percentage of distribution cable to be modelled as aerial infrastructure rather than underground. The Commission does not explain how it established its final figure of 36% for this metric, but given the Commission only cites two data points in its discussion of this topic in its draft determination (Chorus' declared "target" of 20% aerial deployment for its UFB network, and the aforementioned 51% EDB figure) we are left with the conclusion that the Commission has simply taken the midpoint between these two data points.

291. That approach cannot satisfy the s18 test the Commission is required to meet, or the tests/standards it has set for itself in its modelling exercise. The Commission is tasked with protecting the long-term interests of end-users. It has said it will model a HEO that minimises costs, subject to maintaining quality. It has not met either of these tests in selecting the simple mid-point between a figure in the air target set by Chorus for urban New Zealand and hard data from EDBs covering all of New Zealand.

292. The EDB information, on its face, minimises cost without affecting quality, and is based on hard evidence. It is consistent with international experience cited by Network Strategies. It will minimise the cost of UCLL to end-users. In the same way as the Commission used EDB data for lead-ins, one would expect it would do the same for distribution cable, absent equally compelling evidence to the contrary.

293. The Commission has not been given equally compelling information. There is no evidence that Chorus' 20% target is efficient. We have no information about how it was generated, other than that it was arrived at well into the Chorus build program, and so by definition must be conservative. We do not know how it is affected by Chorus' existing network topology and technology choices. And yet it appears to have been given at least as much weighting as the hard EDB evidence.

294. In the absence of clear evidence from Chorus of why a lower figure should be preferred, we conclude the Commission should use the EDB figure for distribution cable, as it has for lead-ins.

The model overstates equipment and trenching costs

295. We do not intend to repeat each of the criticisms made in the attached WIK and NWS reports, but note that each observes what appear to be systemic overstatements of equipment and trenching costs. Some these are the result of incorrect parameters in the model, such as over dimensioning of sub-ducts (which in turn leads to larger ducts and therefore larger (and more expensive) trenches than is necessary. But most are the result of a systemic hesitancy to take advantage of, or to push for, efficiencies in approach.

296. It should be uncontroversial that an HEO deploying networks of the sort the Commission is modelling, would apply rigor in driving unnecessary cost out, and achieving all available efficiencies. The Commission and TERA must apply a similar approach. The following are a simple list of examples where this has not happened:

- a. Trench costs overstated by:
 - i. Unrealistic assumption that the HEO would achieve no underground trench sharing;
 - ii. Unrealistic assumption that an HEO would make no use of existing assets;
 - iii. Our understanding that TERA has not employed an augmented shortest path algorithm designed to minimise trenching cost but instead has applied an algorithm designed only to minimise individual paths between end-user premises and local exchanges;
 - iv. Unrealistic assumption that an HEO would not achieve any "large works" discount to list price for trenching contractors;
 - v. Overdimensioning of subducts, leading to trenches that are unnecessarily large.
- b. Equipment prices overstated by:
 - i. Over-reliance on Chorus data for equipment prices, some of which is a number of years old;
 - ii. Unrealistic assumption that an HEO would pay list price for equipment. WIK suggests discounts of between 20%-40% would be expected;
 - iii. Unrealistic fibre cable, pole and cabinet infrastructure and other equipment lifetimes taken directly from Chorus data;
 - iv. Unsophisticated approach to switch and DSLAM capacity, which assumes the HEO does not purchase multiple sizes of switches to accommodate sites with varying traffic loads efficiently;

297. WK reports that, as a result of these errors, and the Commission's heavily conservative approach to efficiency, it conservatively expects trench prices to be overstated by 45%, duct prices by 50% and active equipment prices by 30%. It shows evidence of NZ cost assumptions that are up to 7 times more expensive than those used in the Danish model.
298. These are not little tweaks or critiques of the Commission's model: they are material adjustments that suggest systematic errors in the approach taken by the Commission in its decision-making and parameters.

Commission approach to asset valuation (ORC)

299. In determining the asset valuation methodology to be used in its UCLL model, the Commission concludes that it will use ORC for all assets, because (paragraph 637):
- a. ORC is consistent with the interpretation of forward-looking costs in the context of TSLRIC (referring to paragraph 129 of the July 2014 consultation paper);
 - b. ORC is consistent with our previous approach to TSLRIC and therefore our TSLRIC objective of predictability; and
 - c. ORC is seen as likely to best incentivise the efficient build or buy choice and so is consistent with our objective of efficient investment.
300. The Commission explains, in preferring ORC, that adopting an alternative methodology would weaken the predictability of the regulatory framework. Such a move can have longer term costs to end-users from its adverse impact on investment incentives. Further, in the Commission's view, in practice, the alternative methodologies have limitations which may impact on their potential benefits. Most notably failure to recognise the opportunity costs of fully depreciated assets that are still in use (at paragraph 300).
301. Further, the Commission concludes that accumulated gains from provided UCLL is not relevant for the TSLRIC exercise [643]. Professor Vogelsang noted that the use of historic cost approach proposed by the EU would fully eliminate the windfall. However, in Vogelsang's view, the Commission would need to distinguish a past mistake (the misjudgement of asset lives) from a systematic property of TSLRIC (the change in replacement cost and the forward-looking feature of TSLRIC cost accounting) (quoted by the Commission at paragraph 641).
302. The Commission suggests that it is difficult to talk about windfall gains without drawing a line as to the valuation date [642]. Trying to retrospectively impose a normal profit on Chorus is not possible in a forward-looking TSLRIC model. While recognising that Chorus may have accumulated gains from providing UCLL over time, we do not consider that this is a TSLRIC issue, and so do not consider it relevant to our forward-looking TSLRIC modelling exercise (paragraph 643).
- Reliance on consistency with our previous approach to TSLRIC and therefore our TSLRIC objective of predictability**
303. While the Commission notes in the previous paper that ORC is consistent with the interpretation of forward-looking costs in the context of TSLRIC, it goes on to accept that different approaches may be appropriate for some assets (paragraph 138 of the 2014 paper).
304. The primary reason for rejecting arguments to recognise re-used assets in the methodology were based the reasonable expectations test (July 2014 consultation paper):

147. *Our view is that there would have been a reasonable expectation that assets would be valued at ORC under a TSLRIC model. This suggests that having special rules for valuing re-used assets may not best meet the requirements of section 18. Asset valuation is one of the key determinants in any cost-based method of regulation on the level of revenues. Therefore, significant changes in asset valuation methodology should not be undertaken lightly, as this can lead to windfall gains and losses to all parties.*

148. *Accordingly, our preliminary view is to value assets at ORC, regardless of whether existing Chorus assets could be re-used.*

305. In other words, while accepting that alternative methodologies were possible in a forward looking model, it did not consider whether ORC was the best approach in the absence of the reasonable expectations test. As noted above, we do not believe that a valuation approach that ignores re-use can be considered forward looking.

306. The Commission states, in concluding in its draft determinations that it should not incorporate historic cost pricing of non-replicable assets in its UCLL model (and thus use ORC) that:²²

To adopt a more predictable approach to implementing TSLRIC, our starting point has been to consider our previous approach to TSLRIC when modelling the TSO. Given this is our first implementation of a TSLRIC model for the UCLL service, we have then drawn guidance from the fact that TSLRIC has been applied as a pricing principle many times in an international context, and this has produced a set of principles developed over time. In our view, predictability will be promoted if we adopt a stable, well established and internationally orthodox approach to TSLRIC, that neither moves away significantly from accepted practice nor quickly adopts the latest cutting-edge economic theory.

307. This statement skips over the 2010 public commentary from the Commission on the subject of TSLRIC principles, where the Commission cited developments in the European Commission's guidance on the application of TSLRIC, and expressly endorsed the use of historic cost pricing for non-replicable assets. These comments were:

- a. More recent than the previous approach to TSLRIC referred to by the Commission;
- b. More directly relevant to the current process, having been directed at the specific question of how to apply TSLRIC to the regulated UCLL and UBA services; and
- c. More relevant to today's investors, having been made when submitting on the structural separation of Telecom into Chorus and Spark.

308. It ignores the fact the Commission's approach to TSLRIC – and in particular asset valuation - when modelling the TSO was criticised by the Supreme Court (we discuss this further below).

309. It also ignores the fact the UCLL price the Commission is reviewing was set in 2012 using benchmarking against UCLL prices from a grouping of European countries. The European regulatory framework clearly favours re-use of non-replicable assets. Given the Commission's public comments in 2010 about re-use, and the European Commission's clear statement directing

²² UCLL draft determination, paragraph 132.

re-use of non-replicable assets in UCLL cost modelling, the “predictable” path would have been for the Commission to incorporate re-use into its modelling.

310. And finally, it also ignores the large body of Commission commentary on the importance of maintaining “international best practice”. Incorporating developments in economic best practice over time is not inconsistent with predictability, it promotes it, because it is best practice..

311. But, in referring to its 2010 comments, the Commission states:²³

While Spark and Internet NZ are correct that we have previously recognised the use of historic costs in TSLRIC models, our submission to the Government review does not establish that this approach is orthodox.

312. Apart from noting the obvious (that “orthodoxy” is not the test laid out in section 18) we also note that this appears to introduce a further addition again to the Commission’s set of section 18 preferences, and again to *undermine* predictability for market participants rather than support it. It also appears inconsistent with the Commission’s recognition that all European states are expected to implement the use of historic cost pricing for non-replicable assets by 2016. If all of the states against which New Zealand benchmarks its UCLL price are adopting this practice, how is it anything but orthodox for the purpose of New Zealand’s TSLRIC modelling of UCLL?

313. Delving further into the history of this emerging European view only serves to support our view, that adoption of the same valuation approach now being mandated across Europe is most consistent with properly implementing TSLRIC. In the late 1990s there was enthusiasm for the ability for TSLRIC to deliver competitive outcomes due to its focus on modelling cost-based pricing. But over time, implementations of TSLRIC pricing have identified the scope for TSLRIC to deliver windfall profits to access providers who are not at all committed to self-funding replacement of the networks they were being compensated for at full replacement rates. In other words, TSLRIC prices and outcomes are inconsistent with cost-based competitive pricing. It is for these reasons that international experience has resulted in developments that limit those choices that are less likely to deliver competitive outcomes. Unless those more competitive judgments are made, the Commission will likely be acting inconsistent with section 19. And if the Commission considers itself limited by law to exclude EU innovations such “book-ending” is likely to be an error of law.

314. If consistency with previous positions or approaches was important to the Commission’s decision-making framework because it promoted predictability, then maintaining consistency with these more recent positions, and the now orthodox European position, should have been of higher importance to the Commission than older positions adopted in a separate process, for a separate purpose.

Best incentivise the efficient build or buy choice and so is consistent with our objective of efficient investment

315. The Commission then goes on to say:²⁴

We consider that opportunity costs are important to incentivise efficient investment decisions. As such, for the purpose of TSLRIC we consider that our asset valuation

²³ Ibid, para 653.

²⁴ Ibid, para 635.

methodology should recognise opportunity costs and include assets that are fully depreciated, unlikely to be replicated, but still in use.

316. But it has not established a sound evidential basis for concluding that ORC is the most efficient methodology. If efficient "forward-looking costs" is properly considered and applied, it is clear that both ODRC and dual asset valuation are consistent with forward-looking costs and are therefore appropriate options for the choice of asset valuation approach. The correct question for the Commission to apply in making its decisions as to TSLRIC modelling principles is "which of the options best meets the section 18 purpose statement. It has not directed itself to that question, and so has failed to apply sections 18 and 19 of the Act.

317. It is true that investment is important for end users in order to maintain the service capability. But this is only future investment – past investment is largely irrelevant. Therefore, to then say that TSLRIC is about investment or that TSLRIC is about Chorus build or buy decisions, and this justifies ORC, misses the point. The Act and end user interests are met by future investment and cost, and a model that materially inflates costs by artificially inflating the value of past investment and building in costs that will not actually be incurred in the future cannot be in consumers interests.

The Commission's use, and interpretation of "investment incentives" and "efficient investment" is flawed

318. We agree that investment, and investment incentives are a consideration for the Commission in applying section 18. As with predictability though, in considering the effect of its decisions on investment, the Commission's dominant purpose must be to advance end-users' interests – a particular investor's interests cannot override this purpose. It is not apparent to us that the Commission has either expressly considered whether the investment incentives it seeks to promote are for the benefit of end-users, or sought to understand the magnitude of any investment incentives and/or countervailing efficiencies.

319. Similarly, maintaining efficient investment incentives is one of the objectives of TSLRIC pricing – but the primary objective is to identify efficient costs so that the resulting regulated prices ensure end-users do not pay for inefficiencies they would not pay for in a competitive market, and the regulated firm has the strongest possible cost-reducing incentives. The two are compatible: if an investor knows he or she will recover efficiently incurred costs (including a reasonable return), then he or she will have an incentive to invest. If he or she knows that inefficiently incurred costs can be recovered, then incentives to over-invest will emerge, which is not in the interests of end-users.

320. Where the Commission faces a decision (such as permitting the re-use of non-replicable assets) it must default to the option that, *ceteris paribus*, advances end-users' interests (in this case, only including efficient costs and not promoting inefficient investment), unless it has clear evidence of a larger, countervailing effect on investment incentives that will have flow-on consequences to end-users that outweigh the benefit of the lower overall price.

321. The Commission's draft determinations appear founded on the opposite presumption by the Commission, which we believe to be an error:²⁵

²⁵ Commerce Commission, draft UCLL pricing review determination, paragraph 175

A determination that undermines incentives to invest would deter future investment and so would likely undermine competition over the long term.

322. This statement, which underpins the Commission's approach to section 18 and to asset valuations in its draft determinations, is dangerously broad and simplistic. Further it ignores that a price based on efficient costs is normally sufficient to promote investment. Section 18, and TSLRIC as an economic tool, are concerned with *efficient* investment, and *efficient* investment incentives – and driving costs and prices of regulated firms lower in order to benefit end-users. Where the Commission applies its decision-making powers to choose an option because of the impact on investment incentives, it must be satisfied, first, that the incentives and investments affected are efficient, and second, that the cost to end-users of promoting those incentives and that investment outweighs the long-term costs of not doing so.

323. This decision again has the effect of inflating the prices end-users will have to pay for voice and broadband services, and worse compensates Chorus for investments it will likely never make.

The Commission has incorrectly concluded that ORC best meets s18

324. The premises for adopting a full ORC valuation for all assets in its UCLL and UBA models was based on three grounds – consistency with the Commission's updated definition of forward-looking costs, the Commission's newly-introduced predictability test, and the Commission's views on its impact on Chorus' investment incentives.

325. We consider the Commission has erred in each of these three conclusions, either through flawed logic or in applying interpretations of the Act that are not available to it.

326. The Commission considered and rejected other asset valuation methodologies put to it on the basis that adopting an alternative methodology would weaken the predictability of the regulatory framework and that these methodologies have limitations.

327. The Commission has not applied the correct legal test when choosing between asset valuation methodologies that are available under TSLRIC. Its decision must be based on evidence that the selected methodology best promotes competition for the LTBEU. In making that decision the Commission must consider the efficiencies that are likely to result. There is no sound or logical reason based on evidence, to find that ORC is the most efficient methodology.

328. In fact, there is evidence that ORC allows the inclusion of inefficient costs in the current circumstances, which the Commission has not demonstrated will be offset through robust empirical evidence that this premium is necessary to avoid the costs to end-users if the affected investment is not made.

329. The Commission also includes, in its defence of the decision to use ORC, and rationale for why the Supreme Court's decision in the *Vodafone* case is not equally relevant to the asset valuation decisions the Commission is required to make in the current processes.

330. The Commission states in its draft determination that:²⁶

²⁶ Ibid, para 660.

The context in which we are required to select an appropriate methodology for the purpose of the FPPs is different. The use of a replacement cost methodology does not afford Chorus an unjustified windfall gain in this context, but is consistent with our task to model the network of a hypothetical efficient operator on a forward looking basis.

331. This directly contradicts the Commissions' own reasoning for its original TSO asset valuation decision, which was based on the similarities it saw between the two: :

The first common issue between the TSO and TSLRIC is the construction of a core network model. [...] In building this model, the Commission has been required to consider and make decisions on a range of issues relating to the design of the core network that also need to be addressed when building a TSLRIC model. The other common area between the TSO and TSLRIC is the economic approach to asset valuation, treatment of depreciation, and the cost of capital of telecommunications assets.

332. It is clear to us that there is no sensible way to distinguish the current position with that considered by the Supreme Court in the *Vodafone* case, and the findings of that case reinforce our conclusions about the errors of law in the Commission's present approach.

333. That *Vodafone* was concerned with backward-looking compensation rather than forward-looking costs makes no difference to the logic applied by the Court. In fact, we note also that the majority of the Supreme Court in *Vodafone* draws support for its decision from a decision of the Australian Competition Tribunal which was about the interpretation and implementation of TSLRIC when setting a forward-looking price for the unconditioned local loop service (the equivalent of our UCLL service). In *Telstra*, the Tribunal considered that the costs of a new entrant hypothetically building a replacement network would not encourage efficient investment by access seekers, and would not reflect the true long-run costs of providing the service, for the same reasons we have argued above (at the heart is the reality that the access provider will never incur some of these costs, even on a forward-looking basis). The Tribunal went on to note that the costs of a hypothetical entrant as estimated by the model that had been prepared did not provide the basis for a price that would promote the long-term interests of end-users (see *Telstra* at 241-245).

334. The Commission also considers that *Vodafone* can be put to one side because there can be no concerns about "windfall gains" where it is applying TSLRIC to set a UCLL price for the first time. However, it is still required to ensure that forward-looking costs do not artificially inflate the value of the notional assets that the hypothetical efficient operator is employing.

335. The Commission's approach artificially inflates the value of legacy assets that are unlikely to be replaced - setting a price for the UCLL service that allows Chorus to recover the cost of investments that will never be made looking forward. This means that forward-looking costs are higher than necessary to provide the service (because the forward-looking methodology includes recovery of costs that will not actually be incurred in the future). If that does not represent a windfall gain, (we think it must) it must by definition represent an inefficiency.

336. Finally, we note also that, contrary to the Commission's characterisation, factoring in asset re-use in an attempt to identify an efficient price is not trying to retroactively impose a normal profit on Chorus. It is simply trying to ensure that forward-looking costs are not over-inflated/do not capture costs that would never be incurred by Chorus or a hypothetical service provider.

WACC and Annualisation

337. In this section we respond to the Commission's draft decision *Cost of capital for the UCLL and UBA pricing reviews* dated 2 December 2014.

Draft determination generally represents a sound estimate of WACC for the HEO

338. We note that in general, the Commission has stayed with its established and stated policy positions, (e.g. the term of the risk free rate and the market risk premium estimate), on a range of generic issues common between the estimation of WACC for the TSLRIC FPP process and under the Input Methodologies (“IM”) for companies subject to Part 4 of the Commerce Act. We note that the Commission intends to update the risk free rate and debt premium estimates as at a date close to the final Determination in respect of UCLL and UBA services.
339. In general, we support the Commission’s reasoning for and selection of the input parameters to the regulatory WACC estimate. WIK and NSL in their attached reports draw the Commission’s attention to a number of detailed matters.
340. There has already been a thorough consultation process in relation to the specifics of estimating regulatory WACC for the purposes of the TSLRIC FPP process for UCLL and UBA, and many of the common generic issues have been the subject of extensive consultation, and consideration in the context of the Merits Review of the IM processes. In this submission, we focus only on a limited range of issues which we continue to think merit further discussion and comment, and without prejudice to the views advanced in previous consultation processes.
341. We discuss the impact of TSLRIC pricing in relation to asymmetric risk exposures and the importance of the mid-point estimate of WACC in assessing the welfare trade-offs of price setting. We raise a number of concerns as to the process followed by the Commission’s in dealing with questions of asymmetric risk in the context of its modelling choices.
342. We think there is no evidence to support any adjustment to the modelled regulatory WACC mid-point estimate. For the reasons set out below, we think that unless such evidence is available, no adjustment to the mid-point estimate can legitimately be made. The Commission acknowledges that it has made a number of modelling choices which cumulatively lead to a higher estimate of the TSLRIC price.
343. Our advisors confirm this and point to a number of issues with the Commission’s cost model which they consider further increase the estimate of the TSLRIC. Based on indications from WIK of the possible impact on prices of some of these modelling decisions, we have made a conservative illustrative assessment of the social cost of setting the UCLL and the UBA increment pricing above a reasonable competitive level.
344. The estimated impact on the increase in the annual rate of growth of GDP in 2013 dollars lies between \$128 million and \$214 million per annum from the incremental welfare benefits from enabling new connection access to end-users primarily from the lower segments of the socio-demographic pyramid. This estimate is conservative since it does not quantify changes in consumption if prices were set at the competitive level.
345. We also comment on the Commission’s selection of a value for beta.

TSLRIC pricing should focus on the midpoint estimate of WACC unless otherwise justified

346. We support the Commission’s draft view that no uplift is required to their mid-point estimate for UCLL and UBA. In paragraphs 198 to 252 the Commission sets out its detailed reasoning. The dominant justification for potentially applying an uplift to the mid-point WACC is the social consequences of the potential underinvestment problem arising from asymmetric risks to cashflows due to variances between the estimated regulatory WACC and the “true” WACC. We think that even a robust estimate of the “true” WACC would mean the underinvestment problem is substantially mitigated by the design of the modelled network for delivery of the regulated service which is required to implement a TSLRIC cost.

347. As a consequence, we urge that adjustment of the WACC estimate for asymmetric risks should be made only in one instance, and only after full consultation. We think adjustment can only be justified where the Commission is completely satisfied, given the nature and structure of the regulatory cost base established under TSLRIC, that there is unequivocal evidence to show that the regulatory WACC does not correctly compensate the regulated firm for exposure to asymmetric systematic and non-systematic risks which are not or cannot otherwise be mitigated within the regulatory framework.
348. Secondary justifications which have been suggested during the consultation process include asymmetric risks due to natural disasters, technological obsolescence and regulatory stranding, and to demand uncertainty. We agree with the Commission's view that these issues should not be addressed as part of the regulatory WACC. These issues are, in our view, dealt with elsewhere in the TSLRIC modelling and will be factored into the prices finally set for the two services in the final determinations.
349. In short, when setting the regulatory WACC, the Commission must consider a range of issues other than the mechanical selection of parameters. Exercising its discretion to set a regulatory WACC within the range must, for instance, take into account the manner in which it has determined the current cost of the infrastructure required to deliver the regulated service. The selection of regulatory WACC affects not only the risk sharing between the regulated firm, its direct competitors, its direct customers, and end-users, but the risk sharing between debt and equity funders of the regulated firm.
350. This regulatory decision needs to balance both the investment incentives for Chorus as the Access Provider, for all Access Seekers, and the wider industry in order to secure the environment for both short term and long term competition. The importance of this balance is magnified by the fact that the history of access regulation in New Zealand has led to significant investment by Access Seekers, and material changes in the competitive market environment to the benefit of end-users
351. The UCLL and UBA FPP processes require the Commission to exercise its discretion in relation to establishing the regulatory WACC in a different setting to the IPP processes with which it is familiar. For the first time, the regulated price is set using a TSLRIC cost model which in the Final Determination should reflect the Commission's best view of the actual current efficient cost of supplying UCLL and UBA services in New Zealand. The selection of regulatory WACC will play an important role in determining the point at which that price sits.

Accuracy in setting both the cost base, and the WACC for TSLRIC is crucial

352. The draft decision shows that the Commission is very conscious regulatory WACC is a crucial input into the TSLRIC price setting process. It is applied to the precise and detailed cost oriented model which forms one of three linked elements in determining a TSLRIC price for the regulated service. In a TSLRIC model, the accuracy of each significant variable is crucial to the accuracy of the final price estimate for the regulated service.
353. In practice, estimation of the regulatory (or corporate) cost of capital involves a number of complex issues. As the Commission is well aware from previous consultations on WACC related matters, these issues require a range of assessments and judgments such that there can be a wide range of justifiable results. In the setting of a TSLRIC FPP model, the estimation of WACC is a critical factor to be applied to material elements of the global forward looking incremental cost of supplying the service, and has a significant impact on model outcomes

What might the welfare costs be of setting prices based on a high WACC

354. Paragraphs [x –y] above set out our findings on the social cost of setting a high cost base. We have noted in earlier submissions in relation to the estimation of a regulatory WACC that we believe it would be appropriate to make an adjustment to deal with the asymmetric risk of error only where there was clear evidence as to the level of adjustment required. These comments apply equally where a range of modelling decisions cumulatively result in a price which is in excess of a reasonable estimate of a competitive price.
355. Consistent with the Act's primary focus on the LTBEU, this would require evidence of the impact on both producer (at all levels of the market) and consumer surplus. This means that a robust forward looking estimate would be required of the range, quantum, and probability of overall social losses arising as a result of setting the regulatory WACC either too high or too low over the regulatory period, not merely the first order impact on any individual market participant.
356. In seeking to compensate as accurately as possible for the estimated social cost some effort should be made to estimate the most probable estimate of that cost. Any assumptions made in this regard should be reasonable and based in fact. This reduces the risk that adjustment to compensate for regulatory error compounds that error to the detriment of the LTBEU.

Impact of the regulatory WACC on future investment

357. In setting the level of WACC, the Commission is required to consider the asymmetric costs of a price on the lower end against forward-looking future investment in the service being regulated. The regulated price must provide an appropriate return on risk on and of the capital employed such that the regulated entity is able to access additional funds on capital markets for efficient investments in innovation or infrastructure. A price that is too low would mean there's insufficient capital to properly maintain and develop the regulated service to meet reasonable demand. That could well result in long term outcomes that do not best meet the requirements of section 18.
358. Given that the WACC estimate is related to the requirements for forward-looking investment in the MEA required to provide regulated UCLL and UBA, we think that there is unlikely to be a requirement for significant capital investment in relation to the provision of UCLL services. Given that the MEA for UCLL is FTTH, future capital investment will likely focus on the delivery of other services with limited spillover. In relation to UBA, the modelled MEA is a copper network. Here again, there is unlikely to be significant capital investment going forward. The copper network is likely to require some maintenance and growth as demand changes, and as migration to fibre takes place given increasing demand for speed and bandwidth.
359. As the Commission notes, attempting to avoid the risk of under-investment in relation to setting the regulatory WACC is less relevant where the network in question is being replaced in the real world, as opposed to a network that is expected to continue to serve consumers for the foreseeable future (at paragraph 222). The principal risk considered by the Commission to be most relevant for telecommunications is that setting forward looking prices too low could reduce migration to fibre to below an efficient level. Instead, this issue may be relevant to the fair value of the modern equivalent assets used to deliver the service. For the reasons set out above, we do not think this is a factor relevant to the decision on setting the regulatory WACC.
360. As opposed to the "classical" TSLRIC implementation used by the Commission, which was developed in the context of fostering entry in the face of monopoly, the more recent evolutions in TSLRIC application recognise the issues which face the regulator where there is workable downstream competition among retail service providers. A TSLRIC exercise by its nature over-compensates for future investment on a network where costs are sunk. Trenches around the country will not all be re-dug. New cable will not be purchased to traverse the nation. The latest

electronics will not all immediately replace current equipment used to deploy the service - at most they will be phased in gradually, over time, as and where required. In the circumstances we agree with Professor Vogelsang that there is virtually no prospect of under-estimating the cost of UCLL or on stymying any future investment that may be required in UBA or UCLL with the prices determined by the Commission in this draft decision.

361. Assuming that the Commission were to be satisfied that a reasonable estimate had been made, it must also follow a robust approach to making an adjustment to its estimate of the forward looking midpoint WACC. In doing this regard should be had to the likely level of variance of that estimate from the midpoint WACC at the time of estimation, and its variability across the duration of the regulatory period. We do not believe it is reasonable to assume that the service specific WACC will remain unchanged for the duration of a five year regulatory period. Again, the LTBEU requires that the most probable forward looking estimate of the midpoint WACC should be adopted.
362. The selection of an accurate estimate of regulatory WACC remains crucial despite the fact that the TSLRIC methodology reduces the importance of the underinvestment problem for the reasons described above. To the extent that estimation errors in the WACC, (in conjunction with any other model error), result in materially inaccurate under- or over-estimates of the true competitive price, there will be a social cost.
363. While a material under-estimate of the TSLRIC price due to the cumulative effect of an inaccurate regulatory WACC estimate, and/or model design choices, may blunt or diminish, or create perverse, investment incentives, a material over-estimate will reward the regulated firm in excess of the competitive price and result in higher costs for end-users. In either case, the regulated price will result in social losses proportional to the difference from optimal levels.
364. If the social losses of setting the regulatory WACC, (in conjunction with the determination of the TSLRIC cost base, and the estimate of demand over the regulatory period), are either too high or too low are broadly symmetric, or if there is no clear evidence to support an alternative then it is appropriate to set the WACC on the basis of a sound midpoint estimate of firms' cost of capital. For the reasons set out in our earlier submissions, and discussed above, we consider that this is likely to be the case in relation to the setting of WACC for the FPP.
365. In short, we believe there are serious methodological issues associated in the context of the FPP process with the Commission's approach to adjusting from the mid-point estimate of regulatory WACC to an arbitrary point above the mean to deal with the concern of asymmetric error, where the potential for compounding adjustment errors is unclear and the risk of introducing additional estimation error is increased.
366. The Commission's use of established expert consultants, and the consultation process undertaken by the Commission, with parties' use of established expert consultants should result in the identification and correction of the most material errors in the key elements of the TSLRIC model. We believe this process will derive the best available estimate of the competitive cost of providing the service.
367. The forward looking nature of the TSLRIC cost methodology deals with another important issue – where correctly implemented, it will ensure that the regulated firm receives a return based on the current efficient cost of delivering the service using the modern equivalent assets. In other words, the dimensioning of the network modelled in the TSLRIC cost model is adequate to meet projected demand, and has appropriate redundancy to be resilient in the face of reasonably foreseeable failure events. In other words, a TSLRIC cost model rewards the regulated firm appropriately with the competitive price for an adequate scale of investment necessary to provide the regulated service without the risk of underinvestment.

368. The Commission itself identifies that the proposed pricing for the regulated services is set at a level which means that no uplift to WACC is likely to be appropriate. The Commission does recognise that setting the price either too high or too low with reference to the best estimate of the “true” cost will have welfare implications. While we agree that this may be the case, we note that any decisions resulting in setting a higher proposed final price, would also require some sound evidential support, rather than simple qualitative assertions. The principle is sound, but there is no clear evidence to support the level of its application to the TSLRIC FPP prices for UCLL and UBA.
369. Good supporting evidence is required whether the higher price outcome is based on the cumulative effect of individual modelling decisions, or on increases for asymmetric risk to the modelled WACC estimate, (this latter as noted by the High Court in the Merits Review processes), The Commission propose that they should give more weight to erring on the high side in order to avoid erring on the low side, but we are unable to identify any evidence supporting the level of that “erring”. Nonetheless the Commission conclude that the unadjusted estimate of the TSLRIC price derived from their modelling decisions is likely to best give effect to the section 18 purpose statement. We discuss our concerns with this position in the following paragraphs.

Commission’s modelling decisions mean that no WACC uplift is justifiable

370. Due to the cumulative effect of the Commission’s individual modelling decisions leading to a higher regulated price, we support the Commission’s draft view that no WACC uplift is required to their mid-point estimate for UCLL and UBA. The Commission acknowledges that the cumulative impact of its decisions in relation to the re-use of civil works, and performance adjustments for the MEA was to result in a price which identifiably erred on the high side, even though this was not the specific basis of those decisions. This is consistent with the advice from our experts. As noted in the attached expert reports, a range of other individual modelling decisions tend to result in higher rather than lower estimates.
371. Even if this were not the case, in the absence of compelling evidence robustly estimating the amount and probability of asymmetric risk, there is no reason for the Commission to choose a point beyond a sound midpoint estimate for regulatory WACC. We are unable to see any evidence supporting an adjustment to WACC, or any evidence supporting the principle that weight should be given to erring on the high side.
372. We are concerned at the imprecision associated with the Commission’s proposal to give weight to erring on the high side of estimating a TSLRIC FPP price to avoid the negative consequences of setting a price that is too low. In effect the assumption is that setting prices for the UCLL and UBA increment which are recognised as being higher than the best estimate of the FPP TSLRIC price as a simulation of the competitive price for the services will offset the need to make adjustments to the regulatory WACC. This approach to setting the TSLRIC FPP price is just as imprecise as making an arbitrary adjustment from the mid-point WACC estimate to the 75th percentile of an assumed normal distribution of WACC without any evidential support.
373. The Commission has not attempted to collect this evidence for the telecommunications context. In particular, it has not attempted to collect evidence about the link between copper prices and the likely speed of migration to fibre-based services, such that it can show that a higher copper price is likely to have a positive impact on end-user migration to fibre. Nor has it attempted to gather evidence on the likely size of any welfare benefits arising from migration to fibre, such that it can be satisfied those benefits outweigh the risks/costs to end-users of paying copper prices that are too high.
374. Any such analysis would also require a detailed consideration of the impact of other factors (including increasing consumer demand for quality and Government policies and subsidies for the roll-out of and migration to fibre) that will play a role in providing incentives for Chorus and access

seekers to invest and innovate in fibre-based services, as well as for consumers to migrate to those services. In other words, the Commission's "in principle" view that erring on the high side is necessary to mitigate the risk of creating disincentives for fibre-based services is based on a simplistic assumption and appears to be overstated. In reality, there are a number of other factors outside the regulatory WACC that will provide appropriate incentives, such that no WACC uplift is required for this purpose.

375. In addition, the characteristics of the telecommunications industry that it has identified (investment in UBA and UCLL legacy technologies becoming less relevant, other incentives to maintain appropriate investment in those services, and the availability of alternative telecommunications technologies in the event of a network outage) reinforce that there is no need for an uplift in the current circumstances.
376. Our 12 September cross submission in response specifically to Chorus' submission on the *Proposed amendment to the WACC percentile for electricity lines services and gas pipeline services* sets out in some detail our views on decision-making around uplifts to the mid-point estimate for WACC in the FPP processes. In that document we noted that the need for evidence to support any adjustment, and outlined our views on the differences between the Telecommunications Act regulatory regime and the IMs.
377. We agree with Professor Vogelsang that the Commerce Commission's application of a "classical" approach to TSLRIC is likely to result in a higher price [420]. We also agree with his observation that this is likely to **offset any efficiency argument** [...] *investment risk or lumpiness that would go against the classical TSLRIC*. In fact, the reason it would likely offset those arguments is because the higher price is likely to compensate for or exceed such an arbitrary adjustment. Professor Vogelsang continues to observe that *[i]t would also take care of [sic] any net positive externalities from incentivizing migration to UFB. Thus, there would in my view be no case to be made for an uplift to the WACC or for a generous approach to any other cost components. [emphasis added]*.
378. In fact, this proviso suggests that his opinion is valid to the extent that the application of a "classical" TSLRIC approach is not generous in respect of any other cost components (as opposed to the implementation of re-use of civil works and a performance adjustment for the FTTH MEA. As WIK and NSL point out in their reports, they believe that an overly generous approach has been adopted in relation to a range of cost components, leading to a materially higher price. Accordingly, the cumulative effect of the Commission's modelling is to further increase the Commission's cost estimate beyond a supportable estimate of the FPP TSLRIC price. In these circumstances, the proposed decisions make it even more unlikely that any assertions, or evidence to justify an uplift to the Commission's WACC estimate are unlikely to be supportable.
379. By making a series of decisions which give weight to erring on the high side of FPP TSLRIC pricing for the regulated services, but without any attempt to estimate the cumulative effect of these decisions, the Commission risks setting regulated prices which are not consistent with the obligation to promote competition for the long-term benefit of end-users. We are unable to see any evidence demonstrating that the Commission's proposed pricing has considered the impact on the efficiencies which will result.
380. In any case, we do not think that the Commission's decisions on other aspects of its TSLRIC model are a material factor when considering whether a WACC uplift is required. :
381. As hinted above, the Commission should be seeking to make decisions in relation to each cost input of its TSLRIC model that generate the most efficient outcome and will result in an efficient price for the service. We are concerned about the imprecision inherent in the

Commission's proposed approach where potential inefficiencies in one input are used to inform decisions on another input, particularly when the correlation or the quantum of the effect between the two inputs is questionable.

382. In particular, the Commission's expert has pointed out that several areas of the Commission's modelling choices in relation to UCLL efficiently incurred costs are generous in favour of Chorus (allowing full replacement cost of legacy assets/not recognising any asset re-use, and not making an adjustment to account for the higher performance of fibre). However, it is difficult to see how this can robustly or efficiently be factored into decisions on the allowed return on those costs.

383. We see the Commission's task in relation to this aspect of the FPP process as being to model the capital costs of an asset base that would represent an efficient network. It is then (separately) required to determine an efficient return on that asset base. It is difficult to see how generousities or inefficiencies in the underlying capital costs of the network are properly relevant to the question of the right WACC to provide an efficient (normal) return on those costs. Accordingly, if aspects of the Commission's capital costs model are recognised to be (overly) generous in favour of Chorus and to contribute to a higher-than-efficient price, they should be corrected and replaced by decisions which are driven by efficiency and cost-based considerations.

384. If, as we suggest elsewhere, changes are made to those modelling decisions, for the reasons set out above, those changes are not relevant to the question of whether an uplift to WACC is warranted. For WACC in the context of a proper TSLRIC model, the decision that will drive the most efficient price is to use the mid-point estimate in the absence of robust emphasis to the contrary. To do otherwise risks outcomes which subordinate the long term benefit to end-users in favour, at best, of incentives to innovate and invest, and at worst, in favour of inefficient provision of the regulated services.

385. In relation to this trade-off, Professor Vogelsang's comments do not refer to the other important aspect of setting a higher FPP TSLRIC price than a price which will promote competition in telecommunications markets having consideration for incentives to innovate and invest, but for the long term benefit of end-users. Based on the questions to which he is responding, Professor Vogelsang's advice does not address the corollary: the social cost of setting an excessively high FPP TSLRIC price.

386. In short, the Commission must guard against setting the long run forward looking price at a non-competitive level which reduces total welfare, and impacts adversely on producer surplus at all levels in the wholesale market, and which reduces consumer surplus to the detriment of the long term benefit of end users. While we agree that no adjustment to the mid-point estimate of WACC is justifiable based on the Commission's modelling choices, we think that a correctly applied TSLRIC approach would mean that no adjustment to the mid-point estimate should be made in the absence of sound supporting evidence.

Other comments on WACC

More recent data should receive a greater weight in the beta analysis

387. In paragraphs 132 to 168 of the draft determination, the Commission sets out its reasons for selection of the asset beta. The Commission's estimate of 0.40 for the asset beta seems to us to be reached using a sound process with only one real issue that warrants further comment.

388. We support the Commission's decision to rely on Oxera's refined comparator sample. In our view the Commission's choice of the period over which the average asset beta should be used also seems to us to be appropriate. We agree that the Commission should place more weight on asset beta data from the comparator set for the five year period to 2014 than on the preceding five year period to 2009. For the reasons set out below, we believe that the choice of an asset

beta which places greater weight on the recent data than the Commission currently proposes would be more correct.

389. Like the majority of submitters in earlier consultations, we continue to believe that relying on the observed average asset beta for Chorus would be inappropriate in selecting an asset beta for the UCLL and UBA services. We also consider that it is most appropriate to limit the term over which comparator data is averaged to either five or ten years is appropriate for the reasons set out in the draft decision.
390. The Commission notes that there are significant differences between the average asset beta estimates reported by Oxera in their refined comparator set for the five year period to 2009, and the lower average asset beta estimates for the subsequent five year period to 2014. We also note that Oxera advised the Commission that telecommunications asset betas have been declining.
391. In paragraph 161, the Commission expresses concern that the use of the most recent five year average from the WACC draft could give rise to an estimate below the forward looking estimate for the proposed regulatory period for UCLL and UBA. We think it is appropriate to take account of the data from the full ten year period, and to apply some weight to the most recent period as described in paragraph 162. There are a number of reasons why we believe that the Commission should consider placing most weight on the recent period.
392. We consider that historical beta estimates are not necessarily the best predictor of a forward looking beta estimate, particularly across the regulatory period. The literature on this subject also suggests that beta is not necessarily stable over time. As a result, any point estimate of asset beta which will be fixed for the regulatory period will have some estimation error attached. This has additional implications in relation to the special case of regulated infrastructure access providers who also carry on material unregulated activities.
393. As noted in previous submissions on the regulatory framework, in the long run for unregulated firms, market forces tend to bring down rates of return to the level of the cost of capital: under regulation, the selection and estimation of cost of capital aims at mimicking this market outcome. The CAPM approach to estimating WACC reflects the fact that it is only systematic risk which is compensated for by capital markets in a competitive market. A regulated firm has some level of buffering of risk, at the cost of reduced flexibility in its ability to adjust to fluctuations. Shareholders in that firm will receive a return reflecting the fact that regulatory pricing will largely insulate them from windfall capital losses over the period, and limit their exposure to the possibility of windfall gains over the same period. We think this should be the reasonable expectation of shareholders in a regulated infrastructure company such as Chorus.
31. The conditional relationship between return and beta for lower beta companies generally means that when excess market return is positive, a share with a lower average beta gains a lower average return, while when excess market return is negative, it gets a higher average return than higher beta companies. In the absence of the ability to increase prices above a regulated cap, the lower systematic risk for a regulated infrastructure company also reduces the risk that shareholders will receive less than the expected return. This would be the reasonable expectation of an investor in respect of the returns on regulated services.
394. We note that Oxera identified no market data evidence of or theoretical support for any significant difference justifying a different asset beta for UCLL and UBA. We agree with this point. We also note that Oxera's recommended range based on analysis of the asset beta for Chorus lay between 0.35 and 0.40. We agree that this expert recommendation suggests that a value within this range is reasonable.

395. However, we think there would be a distinction over the regulatory period between the risk characteristics of three distinct sets of returns; those earned by Chorus from UCLL, UBA and other regulated services, those earned from unregulated services, and those associated with the provision of contractually limited fibre services under the UFB arrangements.
396. All comparator companies in Oxera's refined sample seem to us to be selected on a reasonable basis, despite the fact that none of them are solely fixed line wholesale operators. We also think, given the allocation of risk between Chorus and Crown Fibre Holdings under their UFB arrangements, it is appropriate for Oxera to have excluded fibre entrant companies, (as opposed to fibre incumbent companies). We do not find it surprising, given these differences between business of providing UCLL and UBA services and the activities of the refined comparator set that Oxera report an average range
397. Given the fact that Chorus is the majority provider of fibre services across the UFB footprint we think that it would be less important to set a significantly higher beta for UCLL and UBA services on the basis of technology risk relative to electricity lines services. It is reasonable to expect the beta to be higher than the Commission's estimate of 0.34 based on the IMs. We would expect that the asset beta relevant to Chorus' unregulated services and fibre services would be higher than the asset beta for UCLL and UBA services.
398. Accordingly, as a reasonableness check, we would expect the asset beta estimate for UCLL and UBA services to be lower than Oxera's asset beta range estimate based on Chorus as a whole, but higher than the Commission's estimate for electricity lines services in the IMs. By giving further weight to the most recent five year period, we believe a beta estimate of 0.37 would be most appropriate.

Calculating the FPP price for the services

The Commission should not set a single nominal price for the regulatory period

399. The Commission's model results in increasing UCLL and UBA costs through the proposed regulatory. The Commission proposes – as set out in the July 2014 paper – to set a constant price in nominal terms over the regulatory period (paragraph 403). A constant nominal price is seen as providing price stability over the regulatory period (paragraph 410).
400. We do not support the proposed approach, the Commission should set prices that vary through the period:
- While maintaining a constant price might provide stability through the regulatory period, it will result in a significant disconnect between regulatory periods. If the Commission were to adopt a similar replacement cost valuation for the next regulatory period, there would be a significant increase for the period starting year 6. For example, assuming a constant rate of increase, a UCLL price of around \$31;
 - The Commission is seeking to set efficient price signals – within the obligations of the Act - and it should look to align determined prices with these signals. If the forward looking cost to provide the service is increasing year on year, then this should be signalled to consumers and investors; and
 - An further implication of the price signals, is that the proposed approach potentially transfers costs between consumers in different price periods, i.e. between end users in earlier to consumers in later years.

WIK comment on this at paragraph 75 of its report.

401. A better approach more consistent with the pricing principles in the Act and s18 is to set prices based on prices through the years.

Backdating

402. The Commission's emerging view on backdating is that, once determined, final monthly prices for UBA and UCLL should be backdated to 1 December 2014 but no earlier.

403. The Commission's view on the legal framework applicable to backdating is that:²⁷

- a. It is not required to backdate its pricing review determinations, but it has discretion to do so (paragraph 14).
- b. The section 18 purpose statement will provide the most important guidance when determining whether to backdate prices. Any decision to backdate will need to be demonstrably efficient, demonstrably promote competition, and directly benefit end-users (paragraph 15).
- c. A key reason in favour of backdating is that the FPP price can be seen as a "correction" of the proxy IPP price (paragraph 16, citing from the Court of Appeal backdating judgment).
- d. If companies are financially disadvantaged by the timeframes of the FPP process, this may harm investment which would not promote competition for the long-term benefit of end-users (paragraph 22, 28).
- e. For UBA, section 18 would be better served by having the most accurate price take effect from 1 December 2014 - the end of the retail-minus price freeze (paragraph 23).
- f. For UCLL, SLU and UCLF:
 - i. The interaction between UBA and UCLL (including unbundling incentives) supports a decision to backdate to 1 December 2014, but no further (paragraphs 29 and 30).
 - ii. Backdating to 1 December 2014 would likely best give effect to the section 18 purpose statement, although the Commission intends to forecast and take into account the impact of potential backdating on retail service providers when making its final decision (paragraphs 31-32).

404. As set out in the Russell McVeagh opinion we provided to the Commission in April 2014, the Commission has discretion to backdate and should be guided by the effect of backdating on its ability to best achieve the section 18 purpose:

- a. the Act is silent on backdating;
- b. the Court of Appeal decision can be distinguished from the present process. It was made, in reference to a different statutory provision (a determination under section 27 of the Act and not a standard terms determination under Subpart 2A of the Act), and in that context,

²⁷ All paragraph references in this section refer to the December 2014 process and issues update paper *Supra*.

- c. stated that an FPP price should be treated as being more efficient than the IPP price it replaces. Importantly the Section 27 determination could have expired (or been close to expiry) and been of no effect by the time the Court of Appeal decision was handed down if it had not been given retrospective effect²⁸;
- d. the Courts have not to date considered how backdating should be applied in the materially different circumstances of a pricing review determination that applies the final pricing principle for a standard terms determination (as elaborated on in the legal advice received by the Commission). Importantly in this case a standard terms determination does not have an expiry date.²⁹ The price determined in accordance with the FPP will prevail in the market from the date of the determination. We therefore agree that judicial precedent does not making backdating mandatory;
- e. backdating will amount to giving the FPP determination retrospective effect - and therefore a power to backdate should be exercised cautiously; and
- f. ultimately, the Commission will need to decide whether backdating is consistent with section 18 in all the circumstances.

405. Although the High Court did not accept arguments that backdating breaches the presumption against retrospectivity and/or is inconsistent with the Act's provisions that IPP prices are legally binding pending a FPP, the retrospective nature of backdating means that it must nevertheless be used with caution. In particular:

- a. The clear scheme of the Act is that IPP prices are legally enforceable and binding pending any FPP review (or appeal).
- b. The effect of backdating is to change the price that was legally binding at the time it was paid - the content of parties' past obligations are changed with retrospective effect (see *Vodafone Limited v British Telecommunications plc* [2010] EWCA Civ 391 at para 41).
- c. The fact that regulatory matters may be complex and take a long time to resolve does not mean that a power to backdate is necessary (see eg *Vodafone Limited v British Telecommunications plc* [2010] EWCA Civ 391 at para 45). The Commission has powers to control its own regulatory processes and seek to deal with these as quickly as possible (leaving sufficient time for robust consultation). It also has powers to prevent delaying tactics from the parties involved. In any event, as highlighted by the UK Court of Appeal, the fact that the resolution process takes time does not deprive the final result of value. In this case, the FPP still serves an important role by ensuring an efficient price is in place going forward - backdating is not necessary to support that outcome.
- d. The primary impact of backdating is a wealth transfer between parties to the STD. It is unlikely that such transfers can create efficiencies or benefits for end users (who have already paid for services based on the legally binding STD price at the time). Bare wealth transfers do not, on their face, promote the efficiency purpose of section 18 for the benefit of end users. The wealth transfer would need to have a flow on effect of promoting efficiency. In the case where the recipient of a wealth transfer holds significant market

²⁸ Section 30(1)(e) requiring that such determinations are given an expiry date

²⁹ Section 30Q of the Telecommunications Act 2001

power, or a monopoly, in the relevant markets it should not be expected that a wealth transfer will have flow-on pro-efficiency effects.

406. In short, it is difficult to see that a wealth transfer which changes the prices on which the market operated (and on the basis of which end-users have paid for internet services that they have already consumed) can be consistent with section 18.

407. Further, the FPP is not a “correction” of the IPP price as characterised by the Commission. It may be more efficient and a more accurate estimate of forward looking costs as a result of the more extended cost modelling, but that does not mean the earlier IPP price was wrong. The better view is that each price is legally correct (unless an error of law has been found) – and is not factually “wrong” just because a different price emerges from a different (more accurate) pricing process. As noted by the Court of Appeal:³⁰

Whether made under s 27 or 51, a price determination has the character of a proxy for the most efficient agreed price for a purpose specified in s 18. A s 51 determination does not supplant a s 27 determination because the latter is wrong, but because the former must be regarded as more efficient by reason of its more sophisticated methodology.

408. Section 42(2) provides that the IPP price continues in force until the pricing review determination is made. A price that prevails in the market is the price on which investment decisions are made; it is the price which determines competitive outcomes in the market during that period; and is the price which determines the settings by which consumer demand is tested. Backdating a lawful prevailing price is likely to have a number of retrospective consequences to those investment decisions, those competitive settings and those consumer choices even though those choices cannot be undone. An investment which was once viable becomes unviable retrospectively; a price which was once competitive becomes retrospectively under water; demand indicators on which business cases were built are now retrospectively undermined.

409. The problems caused by retrospectivity can be demonstrated when considering relativity – a mandatory relevant consideration when setting the UCLL price. If the relative spread between UBA and UCLL in, for example, December 2013 was such that investment in UCLL was justified, a decision to backdate from September 2015 to December 2013 would completely undermine the basis on which the investment decision was made in 2013. The unbundler involved would be entirely unable to reverse its investment or recoup any of the lost margins it had made as a result of competitive pricing it provided to the market for its UCLL services.

410. A failure to recognise the impact of unbundling on relativity would of course be unlawful (an error of law), as could failing to give appropriate weight to the impact of unbundling on relativity (a reviewable irregularity). And the commercial reality is that due to the low margins earned in the sector Access Seekers do not hold substantial funds in reserve on the basis of a possible retrospective change to prices or the existence of a regulatory process. Especially with the extended uncertainty as to exactly where prices will eventually land. Access seekers are unable to make provisions in their financial statements for potential backdating which creates uncertainty and potential confusion for investors.

³⁰ *Telecom New Zealand Ltd v Commerce Commission* CA75/05, 25 May 2006 at paragraph 15.

411. Ultimately, as set out above, the key issue is whether a decision to backdate will best give effect to section 18. The Commission has not demonstrated that it will do so:

- e. As noted above, the Commission has been clear that backdating must be demonstrably efficient, demonstrably promote competition, and directly benefit end-users:³¹

15.2 In particular, any decision to backdate will need to be **demonstrably efficient**.

15.3 Likewise, a backdated sum payable to the access provider (either as a lump sum, or 'smoothed'), or a backdated price reduction competition in a way that is likely to **directly benefit** end-users.

412. These are the right criteria when thinking about whether backdating is consistent with and will promote section 18. It will be a difficult threshold for the Commission to meet. Evidence to the Commission will need to positively establish that backdating is efficient and will promote competition. Currently, its preliminary decision to backdate prices to 1 December 2014 is based on unsubstantiated assertions that there "may", "possibly" be harm to investment incentives, and that avoiding disincentives "can promote competition".³²

22. We consider that if companies are financially disadvantaged by the timescales of the FPP process, this **may** harm investment which, in turn, would not promote competition for the long-term benefit of end-users. If there is a delay in implementing the final FPP prices (whether due to a change in the process or subsequent litigation which protracts any finality of the pricing), investors **may be** deterred from innovating and investing in a way that would grow the overall market and promote competition. Investment **can promote competition** for the long-term benefit of end-users, and accordingly avoiding disincentives to investment incentives **can promote competition** and give effect to the section 18 purpose statement.

[...]

28. We consider that it is possibly damaging to investment incentives if parties are disadvantaged by the time taken to complete the FPP, as discussed at paragraph 22 above. That is a consideration in favour of backdating, at least to 1 December 2014, which is when Parliament envisaged the UBA FPP pricing process might be completed.

413. As the Commission appears to accept in its letter to Vodafone of 5 February 2015 these statements about a potential risk of harm to investment incentives, the potential flow-on consequences for competition, and the potential impact on end-users are not sufficient to show that backdating is demonstrably efficient and will demonstrably promote competition. Further, the very reason for having an IPP (that is binding in the interim) is to provide a certain and stable market while a subsequent process is undertaken. It was known that an FPP process would be complex and lengthy - see page 68 of the Fletcher Report. It was also hoped that a robust IPP price would avoid the need for FPPs. It is therefore illogical to say that section 18 requires any potential financial disadvantage from the length of the FPP process to be remedied by way of backdating on the basis that investment incentives may be harmed: the IPP price has been set at a level that promotes investment for the benefit of end users. That is because investment incentives are always forward-looking.

³¹ December backdating paper (emphasis added).

³² December backdating paper (emphasis added).

414. We accept that the uncertainty associated with FPPs can harm investment incentives while the outcome of the FPP is unknown, but that occurs with or without backdating, and cannot be remedied by any windfall conferred by backdating.
415. To simplify, if the Commission awards Chorus \$100 million in backdated payments, what efficiency or other benefits can end-users expect as a result? Chorus' investment incentives, and how it will assess future investments, must be unaffected by a Commission decision to backdate its decision – because those investments must be assessed on their merits. They may well be affected by the future revenue stream implied by the Commission's decision, but again, backdating does not affect that. Rather, acting in the best interests of its shareholders (as it is required to do) Chorus must be expected to pocket any backdated award as a windfall gain. There is no prospect of the award being competed away, because Chorus is the only firm that will benefit from a backdating award in the direction signalled by the Commission, and so there is no feasible argument for why a profit-maximising firm will do otherwise. There is no efficiency benefit in that outcome.
416. The counter-factual, if you like, of a decision not to backdate an increase in the UCLL price, will however have a clearly observable efficiency effect. The retail markets for fixed voice and broadband services are demonstrably competitive. So competitive in fact that the markets anticipated the Commission's signalled reduction in the UBA price, and have anticipated again the Commission's signalled backdate of the increase in the UCLL price. In the latter case, this has come at end-users' cost (although we should make clear that Spark will not be able to recoup all of the backdated amount as a result of its announced retail price rises). If the Commission instead chooses not to backdate, there is clear evidence that the competitive retail market will deliver this windfall back to end-users, and therefore promote efficiency.
417. Applying the Court of Appeal's efficiency test to this backdating question, we get to a very different answer than it did in that case – and that is perhaps not surprising given the significant differences in the two sets of facts. Simply put, an award in favour of a retail service provider competing in a competitive market will in most cases result in greater efficiencies than a comparable award to a network operator with significant market power. Further, we can also say that the incentives for any party to delay the finalisation of a FPP price are very different in an STD – where the Commission is able to set the regulatory period to which the new price applies prospectively. This is quite different to the position of determinations under consideration in *Telecom v Commerce* commission discussed above.

END

Attachment A: WIK-Consult report

Provided as a separate document.

Attachment B: NWS report: A review of key issues

Provided as a separate document.

Attachment C: NWS report – Modelling Fixed Wireless Access

Provided as a separate document.

Attachment D: Illustrative estimate of social cost of high price

Introduction

The draft decision sets out a proposed price for the monthly rental of UCLL price, and the proposed incremental price of UBA. In this attachment we try to illustrate some of the ways in which the final UBA price will impact on the New Zealand economy.

First, the final price will have direct effects on broadband demand for copper-based access services, demand for and migration to fibre access services, and incentives for investment and innovation by Chorus, by retail service providers, and by intermediate and final end-users. In addition, there will be a range of indirect effects relating the impact of broadband access to the segments of the New Zealand business sector and end-user population currently without household access to broadband in the home.

We think that it is well-understood that the effects of setting the UCLL and UBA prices involve a number of complex welfare trade-offs. Based on the draft decision, we are concerned that these trade-offs have not yet been fully articulated, assessed and then robustly evaluated qualitatively (and to the extent possible quantitatively).

In particular, we think that there has been a greater weight on issues in connection with the importance of fibre migration, and the consideration of Chorus' obligations in respect of the UFB build program. As discussed in detail below, we do not think there has been sufficient consideration of the impact of UCLL and UBA pricing which exceeds a reasonable estimate of the competitive price for the respective services.

The existence of these trade-offs, and the possible range of prices which can be derived from TSLIRC cost modelling calls for the Commission to exercise great care in making its expert judgment over the final regulated prices. The Act requires the Commission to have primary consideration for the promotion of competition for the long term benefit of end users in its assessment of the correct model inputs, model architecture, and model outcomes. This is ultimately an application of the principles of welfare economics to the competitive environment of the New Zealand telecommunications industry, and the flow-on effects for other economic activity. It is this landscape which determines social welfare benefits.

UBA price relativity with fibre pricing OR access to broadband for additional lower income households

We think the draft decision pricing, and particularly the pricing for UCLL which drives the full pricing of UBA is set at a level which exceeds a reasonable estimate of the efficient price. While we are not able, in the scope of this submission, to set out a full analysis of the various welfare trade-offs we think it important to highlight particular aspects which seem to us to be highly relevant.

An overemphasis on UBA price relativity with the contractually set fibre pricing, represents a welfare trade-off which impacts adversely, primarily on access to broadband, for New Zealanders whose household income is below the median income in New Zealand. In contrast, our expert consultants have provided indications of a plausible competitive wholesale price level for UCLL and UBA based on the Commission's model, and without unrealistic levels of efficiency optimisation.

Illustrative example of the benefits to GDP growth of setting the full UBA price at a competitive level

We will set out in a straw person analysis below, an indicative view of the impacts of setting a price at this level on access to broadband for lower income households based on 2013 Census statistics. This

produces a high level assessment of the social cost of setting the UCLL (and to a lesser extent the UBA increment) pricing above a reasonable competitive level.

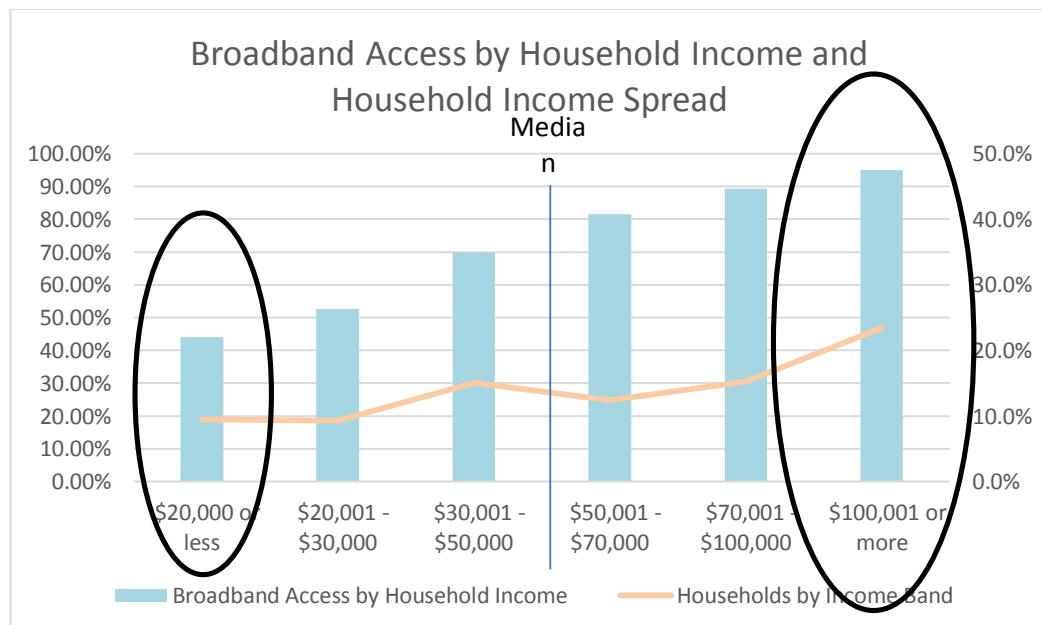
We think that there are likely to be more significant welfare benefits from UCLL and UBA pricing set at a reasonable forward looking cost based price based on practical real world assumptions, and set at a competitive level for that product.

As yet there is limited evidence for the actual incremental welfare benefits for end-users over the five year regulatory period from migration to UFB, notwithstanding assumptions and forward looking estimates.

The straw person example set out below suggests there is evidence that pricing which incentivises access to broadband for smaller businesses and those New Zealand end-users in the lower segments of the socio-economic pyramid would provide significant gains to the New Zealand economy over the same period.

The 2013 Census data compiled by Statistics NZ clearly shows that household broadband access by household income is in excess of 80% for households whose income is above the median income. The graph below illustrates the 2013 Census results by income band, contrasted with the proportion of households within each band.

- a. The 10% of households reporting household income of less than \$20,000 have the lowest proportion of household broadband access, while more than 90% of the top 23% of households by household income have household broadband access.
- b. Approximately 23% of households, primarily those in below the median household income level do not have household broadband access.
- c. About 70% of households responding they have broadband access have household incomes above \$50,000 while 30% of households with broadband access have incomes below that.



It is clear that household access to broadband in New Zealand³³ is strongly dependent on the interaction between the cost of access and household income.³⁴ Although the level of penetration has changed since the 2001 Census, Statistics NZ data indicates that improvements in broadband access, and increases in speed and affordability between 2001 and 2013 continue to exhibit the same general pattern.³⁵ As internet access prices have decreased, as bundled bandwidth has increased, as cost of equipment have decreased and their capabilities increased, and the level and quality of information and applications has skyrocketed, unsurprisingly consumption has increased across all households.

Currently most access to broadband is through DSL technologies, HFC and technologies in limited locations, fibre where build is complete and practically available, and dial-up access for low-consumption and some rural users, and low consumption mobile access. The majority of broadband access, based on the Commission's market monitoring is delivered through the UBA service offered by Chorus.

The welfare gains from migration from copper-based access services to UFB will be incremental to the welfare gains from gaining broadband access for those currently without household broadband access. This suggests that setting prices for UCLL and UBA designed to promote migration will continue to limit access for those households currently without household broadband access. We think the Commission should consider the evidence carefully in setting a price which makes a welfare trade-off between migration to UFB and access to broadband, in deciding the pricing which maximises the long term benefit to end-users in New Zealand.

Incentives for migration to fibre in the long run should be based on evidence suggesting that in general an increase in the uptake of UFB will generate a net welfare gain. Mere take-up statistics, while clearly important, are not in our view the only touchstone of success in terms of benefit for end-users. The UFB network can only generate a net welfare gain over copper broadband access to the extent that it is based on availability of, and access to new services and applications which are not currently able to be practically delivered on the existing network. This of course also requires sufficient take-up for both retail service providers and local and offshore over the top providers to invest.

In the following discussion, we focus on the overall price charged for UBA to illustrate the point. To the extent that the draft UBA price exceeds a reasonable estimate of the competitive price for the respective services, the direct effect will have two aspects: a price impact and a demand impact.

Price effect

As described in paragraph (x) above Chorus would earn an excess return on the wholesale access charges paid by retail service providers who bear all the price impact of that excess return. To the extent that workable competition at the retail level between RSPs ensures that they do so, they pass

³³ Household income is not the only factor, since broadband access, access to broadband capable devices, and user education level, also play a part. We do not discuss here the more detailed breakdown of access to broadband by household income by geographic location, or availability of broadband access by location. These issues are being addressed at a policy level separately to this regulatory process.

³⁴ In other words, and in relation to the proposed regulatory period, the long run income elasticity of demand.

³⁵ See http://www.stats.govt.nz/browse_for_stats/industry_sectors/information_technology_and_communications/digital-divide/chapter-1-household-access.aspx at Figure 2 (accessed as at the date of this submission)

the input costs on to end-users. This means that RSPs are able to maintain the profit levels required to make further investment in infrastructure, technology and innovation, and to access the necessary funding to do so.

A decrease in price to a reasonable estimate of the competitive price charged by Chorus also has a price impact. Chorus earns the competitive economic price for the provision of the service, meeting the reasonable expectations of rational investors in relation to that regulated revenue stream, namely that the regulated activities will realise a certain return³⁶. Workable retail competition will ensure that RSP's pass through most of the benefits of that decrease to end-users.

Demand effect

The second aspect is the demand effect. Given that retail broadband prices based on consumption embed the economic cost of access and the economic cost of capacity. To the extent that higher wholesale prices are passed through to end-users, some end-users will respond by consuming less bandwidth, while other consumers will cease to take-up the service.

Impact of a competitive price on additional demand for access to broadband by lower income households

Statistics NZ's Household Economic Data Surveys support the assumption that broadband expenditure, household access to computers, educational levels in a household, and labour force status of occupants are highly correlated with broadband uptake. There are a number of studies which estimate the price elasticity of demand for DSL or other broadband services. Reliable estimates of the price elasticity of demand for incremental consumption of bandwidth are less easy to find. In addition, a number of studies have looked at the impact of the level of broadband penetration on the rate of growth in GDP.

Accordingly, this example provides a high level estimate of the impact on the GDP growth rate for New Zealand of a reasonable competitive price for UBA in comparison with the draft decision price.

- a. We take the full UBA price proposed by the Commission in its draft decision for BUBA/EUBA 0 of \$38.39.
- b. WIK-Consult have advised us that a plausible competitive wholesale price level for BUBA/EUBA 0 based on the Commission's model, and without unrealistic levels of efficiency optimisation would be \$24.47
- c. For illustrative purposes we assume in this example that the regulated price for UBA services based on BUBA/EUBA 0 is \$24.47 amounting to difference between the proposed price and the regulated price of 36.3%.
- d. There is a workably competitive retail broadband market in New Zealand with a small number of larger competitors and a number of smaller market participants. In line with economic theory and empirical analysis, it is not unreasonable to assume that a high proportion of pass-through to end users will take place. For present purposes, we assume a level of pass-through of 75% which implies a difference in the derived retail prices of 27.1%.

³⁶ (ref to Spark Submission on shareholder outcomes under good regulation0

- e. The own price elasticity of demand for copper broadband has been estimated as being -0.951; a level which could be characterised as being price sensitive but mildly inelastic³⁷. This estimate reflects an average over a period from 2000-2008 when DSL penetration was moving through the early stages of adoption³⁸. In aggregate, DSL penetration in New Zealand in 2015 could be characterised as in the late majority stage³⁹.
- f. It would be expected that in aggregate for New Zealand, the long run own price elasticity of demand for DSL access is likely to have become more inelastic over time in comparison. This picture however is incomplete. As the graph above shows, this could also be a reasonable characterisation for a sample made up of the two-thirds of New Zealand households with incomes above \$30,000. However, it is equally plausible, that the own price elasticity of demand for a sample based on the one-third of lower income households with less than 50% broadband access would be more elastic.
- g. This accords with a view of the observed relationship in the literature between fixed broadband penetration and elasticity. Penetration levels around 30% are associated with an elasticity of around 1.88, around 40% with an elasticity of around 1.55. Accordingly, we think it's plausible to use the estimate of -0.951 in relation to uptake for the remaining one third of New Zealand households.
- h. Estimates of the impact of broadband penetration for increases in the rate of GDP have also been carried out over a range of periods and countries. Broadband penetration in the bottom of the socio-demographic pyramid is highly correlated not only with the average household income but also with GDP per capita. One major study estimates that each 10% of extra penetration increases the long run average rate of growth in GDP by 1.21%⁴⁰ based on a panel data study of 66 high income countries over the period 1980 to 2006. We adopt this as a central estimate.
- i. Czernich et al⁴¹ suggest that an increase in the broadband penetration rate of 10% increases the annual per capita GDP growth rate by between 0.9 and 1.5 % based on a panel data study of OECD 25 from 1996-2007. We treat these estimates as conservative upper and lower bounds respectively.
- j. We take the Commission's estimate of 1,221,510 total DSL broadband internet subscribers for 2013 from its Market Monitoring Report as a proxy for illustrative purposes. The increase in demand for each of the estimates of own price elasticity of demand is set out in the table below:

³⁷ Shinohara, S., Y. Akematsu & M. Tsuji (2011). *Analysis of broadband services diffusion in OECD 30 countries: Focusing on open access obligations*. We note the discussion at paragraph 45 of Vogelsang, *Paper Prepared for the New Zealand Commerce Commission*, July 5, 2013

³⁸ For instance Cadman and Dineen in *Price and Income Elasticity of Demand for Broadband Subscriptions: A Cross-Sectional Model of OECD Countries* (2008) report preliminary long-run estimates for own price and income elasticities of demand based on 2007 levels of OECD adoption of -0.43 and 0.78 respectively.

³⁹ Following the terminology employed by Everett Rogers *Diffusion of Innovations*, 2003.

⁴⁰ Qiang, Rossotto, Kimura (2009) *Economic Impacts of Broadband*, World Bank, 2009 Information and Communications for Development.

⁴¹ Czernich, Nina; Falck, Oliver; Kretschmer, Tobias; Woessmann, Ludger (2009) : Broadband infrastructure and economic growth, CESifo working paper, No. 2861

Summary of Key Variables		Estimated increase in annual rate of growth of GDP		
		Upper Estimate	Mid-point Estimate	Lower Estimate
Own price elasticity of demand for DSL	-0.951			
Implied increase in demand for DSL connections	21.6%	1.50%/10%	1.21%/10%	0.90%/10%
Increase in real growth rate of GDP		3.24%	2.61%	1.94%
Estimated real increase in GDP per annum		\$214m	\$173m	\$128m