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New Zealand**

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UBA and UCLL FPP pricing review draft decision

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Executive Summary

The Commission's draft UCLL price takes away much, or all, of the benefit of the UBA reduction.

1. In 2011, reforms were passed that fundamentally changed our sector forever. Telecom was structurally separated into Chorus and Spark and the UFB and RBI initiatives were implemented.
2. These reforms were not costless to end-users. Chorus was awarded \$1.2 billion in taxpayer subsidies. Urban UCLL pricing was increased \$4 as a result of forced averaging. UBA pricing was frozen for three years at a retail-minus \$21.46 a month. Investment in the copper network was allowed to all but cease, and fibre pricing was set above cost at least for the duration of the build period.
3. In return, end-users got earlier access to FTTH and FWA, and they got cost-based UBA pricing.
4. What end-users – and Parliament – did not know, was that this UBA pricing benefit was going to be all but taken away by a corresponding increase in the UCLL price.
5. Both Chorus and the Commission have claimed that the aggregate effect of these price changes is a \$6.50 reduction in costs. That is a misrepresentation.
6. In fact, when we view the price changes as an average price per line, the reduction all but disappears:

Figure 1: Chorus weighted average wholesale prices relative to the UBA and UCLL draft



7. The Commission's draft prices result in an average price per line for Chorus that is almost identical to the price per line received in August 2010, the date at which Telecom submitted its revised UFB proposal, and the point at which a structurally separated Chorus was, in effect, born.
8. At the draft UCLL price, then, end-users will have had to put up \$1.2 billion and accept a retail minus UBA price frozen \$11 above forward-looking cost for three years in order to get back to wholesale pricing levels of five years ago.
9. Even relative to the average price per line at separation (Telecom had successfully increased the retail minus UBA price between August 2010 and September 2011 when the last UBA price observation was recorded) the Commission's draft prices only deliver a reduction in average price

per line of \$2.29 – approximately 1/3rd of the price decrease claimed by Chorus and the Commission. \$2.29. Even at this level, **it will take a broadband end-user approximately 14 years to balance the ledger and make back what they paid to Chorus during that UBA price freeze** period, assuming they are still on the copper network at that time.

And Chorus is asking for more

10. But Chorus is still not content with this. Chorus has advocated for a number of different regulated valuations (one implying a \$45 UCLL+UBA price, another implying a \$75 price and another implying a \$91 price). Each of these implies an average price per line that is far in excess of any ever received by Chorus, or the vertically integrated Telecom before it. Having had its new fibre network subsidised by end-users, it is now asking for end-users to pay more than they ever have for its copper network while it shuts it down. It claims this is necessary to protect its investment incentives.
11. This is, of course, a nonsense. Chorus does not present any evidence that it will receive less than a normal return on its existing assets under IPP prices, let alone the draft FPP prices. It knows there is no such evidence, because TSLRIC pricing by its nature ensures this. It said as much in 2012 when it publicly acknowledged that \$24 was enough to recover its forward-looking costs for UCLL.
12. Similarly, it does not present any evidence that it will receive less than a normal return on its investments in a replacement fibre network under the IPP pricing. Even the Commission's draft model makes clear that the opposite is likely to be true.
13. And it does not present any evidence that its investment incentives will be affected by prices at the IPP level. It knows they won't be, that they can't be, because they are already determined by UFB and RBI.
14. And finally, it provides no evidence of what benefits end-users will get from any upward bias to account for Chorus' investment incentives. Without this evidence, the central objective of the Act – the constraining of market power to deliver long-term benefit to end-users – must require the Commission to avoid and remove any upward bias.

Chorus uses rate or return arguments to demand the Commission applies the TSLRIC model in a way that foregoes the intended benefits to end-users of incentive-based regulation.

15. Chorus makes a series of submissions demanding the Commission go even further than it has in setting an upward bias in its modelling:
 - a. *Aerial, trenching and operating costs should be determined by Chorus' actual costs:* despite the fact the purpose of this exercise is to abstract away from Chorus' actual costs towards an efficient operator's it continues to demand the Commission use Chorus' actual costs where these exceed efficient levels;
 - b. *Cost reduction practices used by Chorus in practice (such as re-use and infrastructure sharing) should not be used by the Commission:* in contrast, where Chorus deploys cost-reduction practices in its networks today, it argues the Commission is prevented from using these same practices in its models and is required, instead, to apply full replacement costs;
 - c. *Network architecture and technology should be determined by Chorus' actual network:* similarly, where new technologies other than those deployed historically by Chorus offer efficiencies that would be reflected in a competitive market, it again argues the Commission is prevented from using them in its model;

- d. *Double recovery of capital contributions from end-users*: it asks the Commission to ignore the contributions made by end-users towards its fibre infrastructure and lead-ins, and instead to compensate it as if it had made those contributions itself; and
 - e. *Triple recovery of capital contributions from end-users*: then it asks the Commission to inflate prices further again in the name of “investment incentives” and “asymmetric risk” despite the principal investments or risks such incentives might be concerned with (replacement fibre infrastructure) being those it has just asked to be compensated twice for.
16. Without fail, Chorus uses rate of return arguments, and presents narrow legal interpretations to argue the Commission cannot realise efficiencies that are available in the real world using modern technology and practices. It does not, for the most part, deny that these efficiencies are available today – rather it argues the Commission cannot recognise them in its models.
17. This approach denies the very purpose of the TSLRIC process, which is to abstract away from Chorus’ actual network and costs. It relies on a belief that Parliament, having chosen to compensate Chorus using TSLRIC pricing, then built a circularity into its application:
- a. First, it required the Commission to set a TSLRIC based price that reflects the efficiencies that a hypothetical operator would realise in a workably competitive market and creates incentives on Chorus to realise those efficiencies; but
 - b. Then, it required the Commission to assume that its hypothetical operator would not take advantage of all of the efficiencies available to it, some of which Chorus already takes advantage of.
18. This interpretation sets an impossible task for the Commission. It has no economic, policy or legal substance to it. All it does is legislate windfall transfers from end-users to network operators with market power, which is the very antithesis of the Act.
19. What Chorus is really saying is that the Commission should apply a rate of return regulatory model, with a full replacement cost valuation. This is no different to what the IM regulated companies sought, and was rejected by the Commission and Courts.

Chorus argues for an asset valuation approach the Courts have already ruled out

20. Chorus supports the Commission's use of ORC. We have reviewed recent case law in New Zealand and Australia to determine whether any key principles could be drawn from the input methodologies litigation in 2013, the Supreme Court's decision on the TSO in 2011 and the Australian Competition Tribunals decision in the Telstra application in 2010. We find that those cases provide clear support for the principle that ORC (when used in a manner that over-compensates the access provider for assets that will not be built) would be unlawful.
21. We have also considered whether a court would support the Commission's view that the use of ORC enabled it to give effect to section 18 on the basis that such an approach was predictable and that such predictability of approach would go a long way to delivering on the section 18 purpose. Our analysis concludes that a court would take a different view.
22. We have asked Russell McVeagh to consider more fully how a court would view the Commission's use of and approach to ORC in this case and attach an opinion from them with this cross-submission.

Backdating

23. Chorus argues that backdating is mandated by the Act. We disagree. It argues that it has already constrained its business operations and investments as a consequence of benchmarked IPP pricing, as well as suspending dividend payments to shareholders. It makes a compelling case for why backdating will benefit its shareholders.
24. What Chorus does not do, however, is show any evidence that:
 - a. The IPP prices would not permit it achieve a normal return on its original investment in its copper network assets; or
 - b. The backdating of FPP prices will affect its future investment decisions in such a way as to reverse the effect if any of the IPP prices on its investment programme; or
 - c. The backdating of FPP prices would deliver any demonstrable benefits to end-users.
25. The fact is Chorus is receiving, and will continue to receive, an above-normal return on its existing assets. Backdating cannot affect how it makes future investment decisions, and cannot deliver any demonstrable benefits to end-users. All it can do is provide a windfall to Chorus.
26. Without evidence that backdated payment would generate more benefit (efficiencies) *for end-users* than the alternative option of not backdating, nobody – not Chorus, not the Commission, can even begin to claim backdating would best meet the s18 purpose. Because unless any efficiencies created by backdating flow-through to end-users then s18 does not recognise them.
27. In contrast, in the event that a decision is made not to backdate, Spark has committed to 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. That is a direct benefit to end-users, a real efficiency that the Commission must have regard to.

Introduction

1. Thank you for the opportunity to comment on submissions on the Commission's draft UCLL and UBA pricing review decisions (**draft decision**).
2. In this submission we respond to the comments made by Chorus and other parties. We expect to make a further submission on 2 April 2015 relating to Chorus submitted data set.
3. Attached are expert reports by WIK-Consult (**WIK**) and Network Strategies (**NWS**) responding to issues raised by Chorus, and a legal opinion from Russell McVeagh setting out the legal position relating to asset valuation methodologies.

Chorus proposes a fundamentally different model to TSLRIC

4. In our principal submission to the Commission, we set out our understanding of the purpose of the TSLRIC exercise the Commission required to undertake. In brief, that purpose is price control, the central objective of which is to constrain the exercise of market power.
5. The tool that Parliament instructed the Commission to use in carrying out that purpose was TSLRIC – a form of incentive-based regulation that is designed to send efficient pricing signals to, and create efficient investment incentives for, network operators, service providers and end-users. These pricing signals and investment incentives are intended to mimic (to the extent possible) those that would exist in a workably competitive market.
6. Incentive-based regulation is different to rate of return regulation. It has different objectives and different results. In present circumstances, rate of return regulation, if applied to Chorus' actual assets and investments, would result in materially lower prices than any prices raised by any of the parties in this process. Chorus' copper access assets are largely depreciated, and Chorus is applying very little investment to them.

Chorus essentially argues for rate of return parameters in an incentive based regulatory model

7. If there is an over-arching criticism of the Chorus submission, then, it is that it repeatedly and consistently raises rate of return issues in what is an incentive-based model. There is simply no credible risk that the Commission's TSLRIC exercise will result in a UCLL or UBA that will prevent Chorus from earning at least a normal return on the original costs of installing its UCLL and UBA assets. If Chorus can show evidence that such an outcome may occur, then it should put that evidence forward.
8. Similarly, there can be no credible risk of the Commission's TSLRIC price reducing Chorus' incentives to invest in its' copper access network, because the investment Chorus is making in that network is so small, and the returns on its copper access network so attractive. It is being compensated at levels that assume it is operating an entirely new fibre network rather than a largely depreciated copper one.
9. Yes, incentives for Chorus to invest in replacement infrastructure for its copper access network are a legitimate consideration for the Commission in applying incentive-based regulation such as TSLRIC. But not as a means to an end: investment incentives themselves are not an objective of s18 – the objective is to encourage efficient investment that operates in the long-term benefit of end-users. In present circumstances, the relevance of investment incentives (and the link between them and benefits for end-users) is materially reduced, relative to other countries, by virtue of the committed investment in replacement infrastructure that the Government's UFB and RBI schemes provide. Put simply, investment in FTTH and FTTN covering the vast majority of lines is already, or soon will be, committed.

10. Further, that committed investment is:
 - a. Heavily subsidised by end-users; and
 - b. In the case of FTTH infrastructure, linked to monthly prices that are well above cost.
11. By any measure, Chorus is presently receiving, and will for the duration of the 5 year regulatory period this process is concerned with continue to receive, above normal returns for both its copper access network and its FTTH network. Indeed, WIK notes in its attached report that Chorus' EBITDA margins are world-leading.

Chorus has asked the Commission forgo the benefits of a TSLRIC model

12. It is in this context then, we are forced to question the logic of the Commission's highly conservative implementation of TSLRIC – its choice to err on the high side.
13. Chorus though, makes a series of submissions demanding the Commission go even further:
 - a. *Aerial, trenching and operating costs should be determined by Chorus' actual costs:* despite the fact the purpose of this exercise is to abstract away from Chorus' actual costs towards an efficient operator's it continues to demand the Commission use Chorus' actual costs where these exceed efficient levels;
 - b. *Cost reduction practices used by Chorus in practice (such as re-use and infrastructure sharing) should not be used by the Commission:* in contrast, where Chorus deploys cost-reduction practices in its networks today, it argues the Commission is prevented from using these same practices in its models and is required, instead, to apply full replacement costs;
 - c. *Network architecture and technology should be determined by Chorus' actual network:* similarly, where new technologies other than those deployed historically by Chorus offer efficiencies that would be reflected in a competitive market, it again argues the Commission is prevented from using them in its model;
 - d. *Double recovery of capital contributions from end-users:* it asks the Commission to ignore the contributions made by end-users towards its fibre infrastructure and lead-ins, and instead to compensate it as if it had made those contributions itself; and
 - e. *Triple recovery of capital contributions from end-users:* then it asks the Commission to inflate prices further again in the name of "investment incentives" and "asymmetric risk" despite the principal investments or risks such incentives might be concerned with (replacement fibre infrastructure) being those it has just asked to be compensated twice for.
14. Without fail, Chorus uses rate of return arguments, and narrow legal interpretation arguments to argue the Commission cannot realise efficiencies that are available in the real world using modern technology and practices. It does not, for the most part, deny that these efficiencies are available today – rather it argues the Commission cannot recognise them in its models.
15. This approach denies the very point of the TSLRIC process, which is to abstract away from Chorus' actual network and costs. It relies on a belief that Parliament, having chosen to compensate Chorus using TSLRIC pricing, knowing this implied higher prices than a rate of return on actual costs would, then added a set of restrictions to constrain this TSLRIC to a full replacement cost analogue of the actual Chorus network. That model has no economic, policy or legal substance to it. All it does is legislate windfall transfers from end-users to network operators with market power, which is the very antithesis of the Act.

16. What Chorus is really saying is that the Commission should apply a rate of return regulatory model, with a full replacement cost valuation. This is no different to what the IM regulated companies sought, and was rejected by the Commission and Courts.

Draft prices do not deliver long term benefits to consumers

17. If the prices set out in the draft decision are finalised, prices to consumers will be higher. Access to, and use of, broadband services and applications (and the associated dynamic efficiency benefits) will be reduced. That represents a cost to end-users, and to New Zealand.

18. So what are the countervailing benefits that mean these prices in fact deliver long-term benefit to end-users? In a market where Chorus faces no competitive pressure, and has a committed investment programme for the duration of the regulatory period in question, it is difficult to see any such benefits.

19. Chorus will pay larger dividends to shareholders – even while in the heavy build phase of deploying a replacement network – and increase its market capitalisation. We have seen the enthusiastic approval from Australian fund managers for this outcome, but we do not see any evidence of how this value will flow through to end-users. WIK notes that Chorus is currently returning an EBITDA margin of 60.9% - one of the highest EBITDA margins of any telecommunications carrier around the world, and yet its investment in replacement infrastructure has still had to be subsidised and contracted for by Government.¹

20. If backdating is implemented prices to consumers will be higher again. Service providers will face significant un-forecast costs. Further, investments made on the basis of the IPP prices will be stranded or substantially undermined. Investment in innovation at the service level, and the incentives to make that investment, will be reduced. The quantum of the associated welfare loss will be significant. As WIK notes, just having fast broadband infrastructure in the ground does not deliver the social, productivity and GDP benefits it can create – for that RSPs and end-users have to invest in the services and applications that take advantage of that infrastructure. Chorus will not make backward-looking investment in the copper network. Nobody, other than Chorus' shareholders, will benefit. The Commission will have failed to deliver a decision that gives best effect to the competitive outcomes set out in section 18.

21. If prices set out in the draft decision are finalised at or above that level, Spark will be compelled to challenge the legality of that decision.

The draft does not facilitate lower prices for consumers

22. The parties have presented the implications of the price changes in differing ways. The Commission notes in the draft determination that the draft price is a decrease of \$6.59 per month from prices that existed prior to the 2011 reforms.² Chorus noted in accompanying media material that the draft decision was a \$6.50 reduction from 1 December 2014 prices.³

23. These views are a gross simplification of the actual position. The Commission proposes to increase the price of a service, UCLL, that all 1.7 million copper lines use, and to reduce the price of a service that is only used on two thirds (1.1 million) of lines. The impact on RSPs and consumers will depend on whether they purchase only the copper line, say, standalone voice or as an input to their own broadband equipment, or both the copper line and broadband service together.

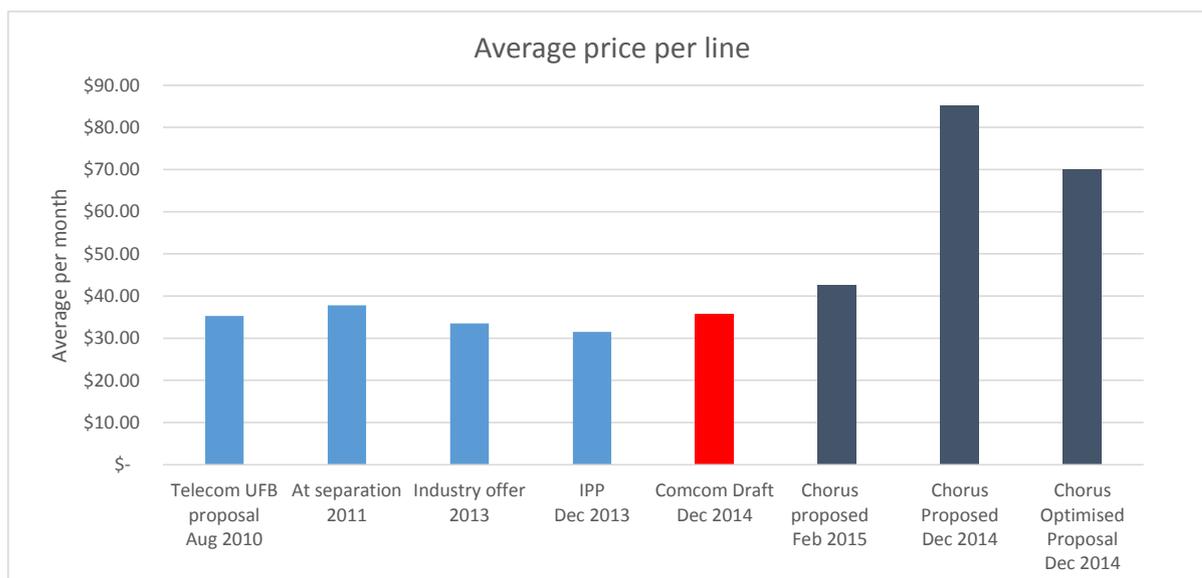
¹ WIK cross submission report, paragraph 30.

² UCLL draft determination, paragraph 3.

³ <http://www.nbr.co.nz/opinion/copper-fight-submissions-ck>

24. Accordingly, the draft prices mark a significant shift in the allocation of the costs of providing the network, essentially shifting the burden from Chorus broadband customers to standalone voice and competing providers. There are inevitably winners and losers. However, overall, prices change analysis shows that overall prices are not coming down for consumers as suggested by Chorus and the Commission. In fact, if the Commission follows Chorus' proposals, overall prices will rise.
25. As figure 2 below illustrates, at the Commission's proposed prices, the average price per line received by Chorus (and paid by end-users) will be equivalent to the average price per line received at the time Telecom publicly notified its revised UFB proposal – the point at which a structurally separated Chorus was, in effect, born.
26. Even relative to the average price per line at separation (Telecom had successfully increased the retail minus UBA price between August 2010 and September 2011 when the last UBA price observation was recorded) the Commission's draft prices only deliver a relatively meagre average reduction of \$2.29 –approximately 1/3rd of the price decrease claimed by Chorus and the Commission.

Figure 2: Chorus weighted average wholesale prices relative to the UBA and UCLL draft

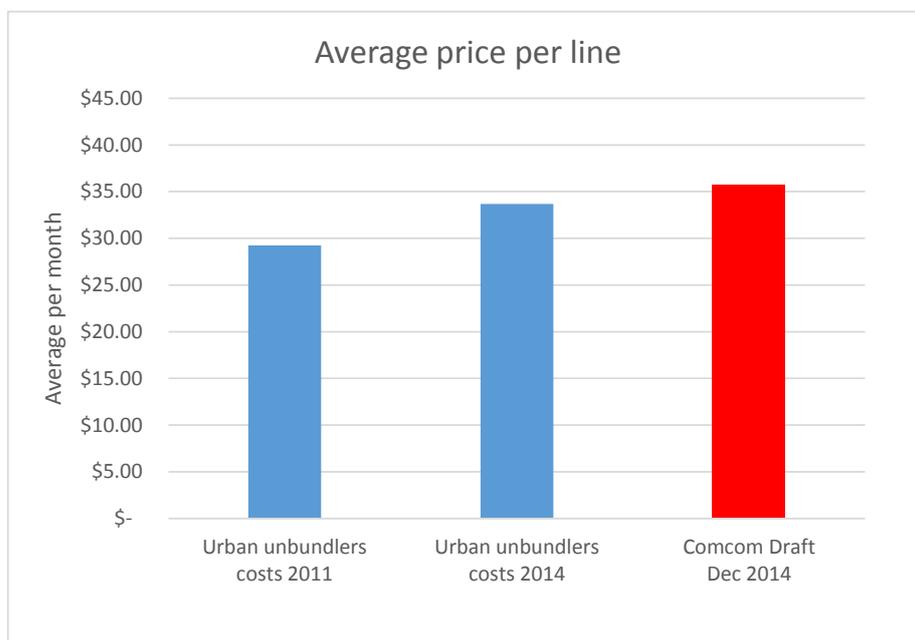


27. In practice, then, the Commission's proposal delivers none of the expected consumer gains from the shift from retail minus to cost based UBA introduced by the 2011 reforms. Nor does it compensate consumers for the contemporaneous geographic averaging of UCLL prices, which was recognised as undermining the competitiveness of unbundling based operators costs.
28. Prior to this averaging, UCLL operators were able to compete on the basis of, predominantly, urban UCLL lines leased for \$19.08 and their own DSLAM equipment.⁴ This unbundled UCLL line cost structure was seen as driving retail prices. However, the 2011 reforms increased the UCLL price to \$23.52 – adding, in effect, \$4 to the cost base that was most responsible for retail pricing levels. At the time, officials noted in advice to the Finance and Expenditure Select Committee that the reduction in the UBA price expected from the shift to cost-based pricing would “off-set” this price increase. The Commission's draft prices increase UCLL by a further \$4.70 to

⁴ Assumed to be equal to the UBA draft determination price for the purposes of figure 2.

\$28.22 per month and in doing so removes one of the key expected end-user benefits from the 2011 reforms.

Figure 3: Chorus weight average wholesale prices relative to urban unbundled lines



29. In this context, Chorus' proposals for further increases in the draft prices (it has variously advocated for UCLL+UBA prices of \$44.98, \$83 and \$91) seem farcical. They amount to requests for regulated compensation at levels higher than those received prior to separation, and despite Chorus having received subsidies in excess of \$1 billion to fund a replacement network infrastructure that locks in its market power in key markets. In Figure 1 above, we have used the least egregious of Chorus' claimed valuations (a \$44.98 UCLL+UBA price). This valuation would increase the average price per line received by Chorus by approximately \$7 more than that prevailing in August 2010.⁵
30. In our earlier submission we noted that the Commission's draft UCLL would result in New Zealand prices 80% higher than the countries we like to compare ourselves to in social and economic terms, illustrating how far out of step the Commission's draft price is with any others.
31. We know that a number of the TSLRIC considerations that usually operate to increase TSLRIC prices calculated by other regulators (in particular investment incentives for the access provider and build/buy signals) are relatively less important in our context, because our Government has subsidised, and contracted for, replacement of the assets we are setting regulated price for. Further, the Commission's model demonstrates that the monthly fibre prices the Government has contracted for, give Chorus a return that is well above normal for its new fibre network.
32. All of this context should operate to reduce our TSLRIC prices below those in comparable countries. As we submitted, somehow this context has had the opposite effect.
33. Similarly, we would expect that the market context today would expect the shift from retail-minus UBA and the de-risking and subsidisation of Chorus' replacement network assets, would lead to reducing regulated prices, well below those from the period before separation.

⁵ See Chorus, February submission, paragraph 18.

34. Again, this has not eventuated. If implemented the draft prices means that consumers will have seen little if any benefit from the 2011 reforms and move to cost based prices, let alone price reductions to mitigate the impact of increased unbundled operators' costs at a time when the market is entitled to expect costs and prices to have come down significantly.
35. These results do not deliver what we would logically expect them to. The Commission must enquire further into why this is the case. If the cause of the UCLL price increase is not caused by intrinsic New Zealand-unique factors but, as we suspect, by conservative decisions taken by the Commission, then the Commission must quantify the benefits to end-users those conservative decisions will deliver and show that they exceed the benefits that would have accrued had alternative positions been taken. If it cannot, then it must address and amend its approach.

There is no evidence to support setting NZ prices 80% higher than seen elsewhere

36. The Commission has proposed significantly higher UCLL prices than in other countries. It notes in the accompanying media release to the draft decision that there appear to be uniquely New Zealand factors, such as the dispersed nature of the rural network, which may differentiate our UCLL prices from the overseas benchmarks.⁶ Chorus also notes in its submission that, with New Zealand's dispersed nature of demand, the prices should be higher.⁷
37. However, there is no evidence to suggest that the New Zealand prices are driven by dispersed demand.
38. Commentators rely on high level measures of customer dispersion to support high NZ prices, and there can be a relationship between customer density and cost. In general, the more dispersed the customers are served by the network, the longer the network routes (the length of trenches, poles and cables) necessary to service those customers and route length is the main drive of network costs. However, at best, there is only a loose relationship between high level population density measures and network cost. This is because the "clustering" of customers is also an important determinant of route length and cost.
39. The Commission considered the nature of population density and network costs in the draft UCLL benchmarking decision.⁸ The Commission explained the issues associated with using population density as a comparability criterion with the following diagram. While the two areas shown below have the same subscriber density (average number of customers per square kilometre), they have a completely different subscriber distribution and hence rather different costs.

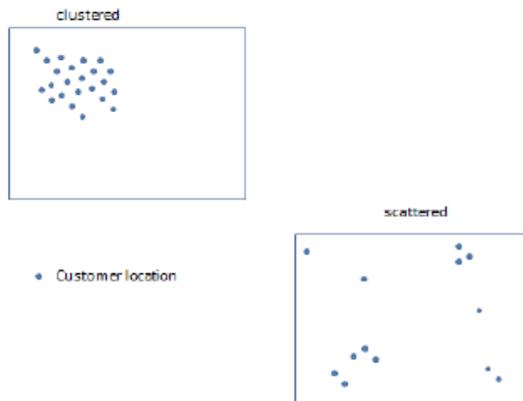
⁶ <http://www.comcom.govt.nz/the-commission/media-centre/media-releases/detail/2014/commission-releases-draft-decisions-on-prices-of-copper-lines-and-broadband-service-for-consultation>

⁷ See Chorus, February Submission, paragraph 88.

⁸ Revised draft determination on the benchmarking review for the unbundled copper local loop service 4 May 2012.

Figure 4: figure showing customer concentration from UCLL benchmarking draft

Figure 2: Impact of customer concentration on UCLL costs



Source: WIK-Consult

40. Population density measured at a national level ignores the degree to which population is scattered or clustered. This is important when determining access costs because population dispersion is directly related to the main cost driver trench length.
41. A further example of the clustering of customers can be seen in the diagram taken from NWS's February report which shows the location of dwellings in the Nelson and Golden bay area (below). The nature of demand is such that customers are clustered in sub regions and this means a significantly shorter route lengths per customer than the size of the exchange serving area would suggest.

Figure 5: Customer locations in the Nelson Golden bay region

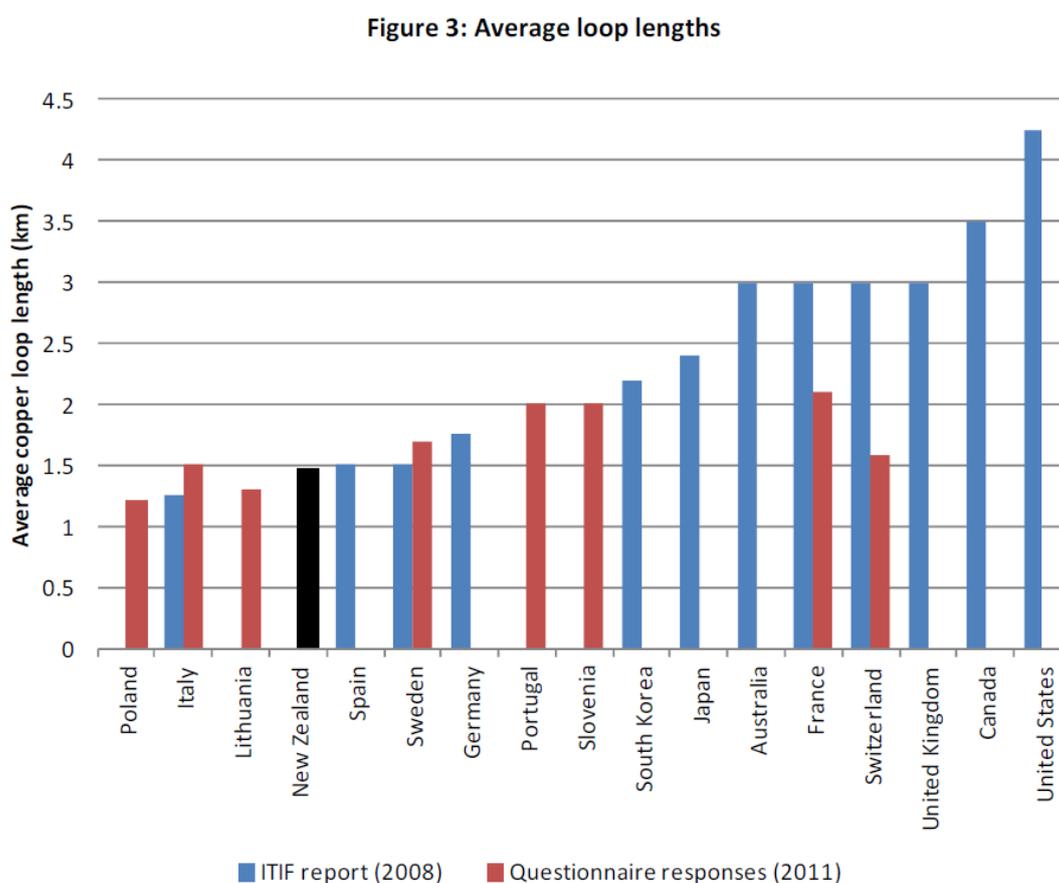
[

[CCNZRI]

42. This means that it is impossible to derive the relationship between customer location and length without detailed analysis of customer dispersion at a sub-national level to understand such clustering. The Commission has not attempted to undertake this analysis. And from what information we have available to us, there is no evidence to conclude that the NZ rural dispersion is driving the high draft prices.
43. As set out in our previous submissions, there are indications that New Zealand demand density is unlikely to be as significant a cost driver as thought and certainly not to the extent that prices should be 80% higher than other countries that apply a forward looking cost prices.

44. For example, evidence considered by the Commission in the UCLL benchmarking review indicated that New Zealand loop lengths are not inconsistent with those in comparator countries.

Figure 6: New Zealand has low average loop lengths



45. Further, as we explain in more detail in **Appendix 1** to this submission, what analysis of route lengths, urbanisation and sub-national population density (a closer proxy for dispersion) we have been able to undertake shows that New Zealand is one of the most highly urbanised countries in the world with large areas where people do not live, with relatively low average loop lengths and a large number of exchanges.⁹ While it is not possible to be definitive, these factors all point to dispersion being less of a factor to New Zealand costs. If we refer back to Figure 4 above, it appears as though New Zealand demand is highly clustered. Nothing we have seen supports the opposite proposition made by Chorus and the Commission- that our low rural density can explain the divergence between the draft UCLL price and the prices set by other regulators in comparable countries.

Proposed prices reflect Commission modelling choices

46. In any case, the TERA model is not susceptible to customer density and route length. As WIK note in its submission report, the Commission has adjusted the model to exclude lengthy loops for which a capital contribution has been received from customers. Such adjustments are common in

⁹ Revised draft determination on the benchmarking review for the unbundled copper local loop service - Draft Determination under section 30K and section 30R of the Telecommunications Act 2001 Commerce Commission 4 May 2012 at paragraph 174; 2013 BEREC's Regulatory Accounting in Practice Reports which include structural data for 33 European countries; and <http://databank.worldbank.org/data/views/reports/tableview.aspx#> - 2011 New Zealand data.

regulatory models.¹⁰ However, it is these loops that would drive cost differences to comparator countries, if such differences were to exist. Accordingly, the TERA model is not susceptible to customer dispersion and this would not explain the significant differences in costs suggested by the draft.

47. In practice, the reason that the draft prices exceed comparator countries by a significant degree is due to the modelling parameters chosen by the Commission. These are set out in the WIK report, including inefficient network design choices, failing to recognise efficient re-use and infrastructure sharing, and input costs. Chorus now argues for less efficient and higher input parameters, pushing the price higher.
48. The proposed high prices will have significant implications for end users:
- a. Paying too much for telecommunications access. In broad ballpark terms, the draft prices imply a significant transfer of anywhere between \$500m and \$1.5B over the regulatory period;¹¹
 - b. We estimated in our submission that the reduced affordability will mean fewer end users and a social cost of – at least - between \$128 million and \$214 million in one year. These effects, and costs, will repeat each year for five years. This was a conservative estimate that fails to scratch the surface of the wider social costs of foregone consumer broadband demand, and under-utilisation of the Chorus network; and
 - c. A significant wealth transfer to Chorus. WIK notes that Chorus, with EDITDA of 60.9%, is one of the most profitably telecommunications operators in the world.
49. As Chorus notes in its submission, the decisions made by the Commission now will be relevant to 2020 and possibly beyond. Yet the Commission is locking in a model that will see year on year increases for consumers beyond the current regulatory period

Orthodoxy and predictability

50. There were a number of submissions on the Commission's proposed s18 emphasis on predictability, and its link between predictability and the application of what it terms an "orthodox" approach to TSLRIC. The majority of submissions, and legal advisors, note that each of these "rules" raises the same concerns as the Commission's previously proposed "reasonable investor's expectations" test. There is no support in the Act for constraining the identification and assessment of efficient costs in the way proposed by the Commission.
51. Wigley + Company submits that the Commission's approach is an error law, applied without any evidential or quantitative basis.¹² Vodafone submits that predictability cannot legally become an "objective" in and of itself, as the Commission proposes, and that even where proper implementation of TSLRIC creates uncertainties for investors, the Act still does not permit the Commission to remove these by "overlaying a predictability test".¹³ We agree with these submissions.
52. The Commission is tasked with identifying the efficient forward looking costs of providing the services. Predictability is but one of a number of relevant considerations it may have regard to in

¹⁰ WIK report, paragraph 13.

¹¹ Rough estimate based on Chorus copper demand over 5 years, and WIK report that the UCLL price could be overstated by up to 50%.

¹² Wigley + Company submission, paragraph 7.5.

¹³ Vodafone submission, paragraphs B2.6 and B2.14.

carrying out this exercise, but cannot be elevated above all other considerations in the way proposed by the Commission.

53. Chorus submits that the Commission needs to apply a predictable and orthodox implementation of TSLRIC. It does not attempt to describe what either of these concepts mean, or provide any evidential basis to show how either will best meet the TSLRIC requirement in the Act, or the s18 purpose statement.
54. So what is a predictable implementation of TSLRIC in our context? What is an “orthodox” implementation of TSLRIC? What is the link between the two?
55. As we have already submitted, we do not consider the Commission’s emphasis of these concepts is lawful. But even if the Commission disregards our principal submission, we question how the two concepts can lead the Commission to the TSLRIC approach it has proposed, and that Chorus supports.

Predictability has little relevance to this exercise

56. As WIK has submitted, predictability has little relevance where the Commission is implementing a pricing principle in respect of a particular service for the first time ever. Market participants and investors all know (and knew at the time FPP applications were made) that TSLRIC thinking and best practice evolves, and had evolved, since the Commission had last considered it. The Commission’s own consultants, TERA confirmed this in their advice to the Commission of the “fast changing nature of the telecommunications market” and the “need for regulatory policies to be updated and relevant to the markets that they aim to address”.
57. Equally, we all know and knew that there were a large number of critical decisions for the Commission to make in its TSLRIC process, and we all know and knew that any number of them could be determinative of the price outputs of this process. It is not credible to claim that any participants or investors can have entered this process with any real expectation as to the level of those prices. It is even less credible to claim that any participants or investors can have had expectations as to the Commission’s approach to the myriad of individual decision-points that would make up its TSLRIC model (such as its approach to asset valuation, or to MEA). Even the Commission cannot know the answers to these questions ahead of time, because it must assess each at the relevant time.
58. In fact, if predictability was the test, the most likely source of evidence for market participants and investors to rely on to predict the approach likely to be taken by the Commission would have been European developments. The IPP for the UCLL and UBA services uses international benchmarks. The Commission applied European-heavy benchmark sets. The EU has recently mandated a detailed set of TSLRIC design principles (as well as a target pricing band for UCLL) having considered TSLRIC matters in depth in a public process lasting several years.
59. Similarly, if focussed only on New Zealand-specific evidence, then we would have found that the most recent and definitive positions taken by the Court (in the TSO case, and the IM review) and the Commission (in its 2011 submission to the Government) suggested an approach (a dual asset valuation approach) that is very different from the one the Commission now claims is required for predictability’s sake. It is far more likely that this hard, recent, evidence from Europe and New Zealand would form the basis for any set of expectations or predictions than the decade-old Commission decisions and papers referred to by Chorus.
60. But those expectations still would not in any obvious way be relevant to the furtherance of the TSLRIC or s18 purposes.

61. Predictability of regulatory decision-making – as it relates to this decision and as it may relate to s18 - operates at much higher level than Chorus, or the Commission, suggest. As we previously submitted, there is clear literature on the value of investor confidence in regulatory frameworks, which we support and agree with. But this confidence operates at a macro level: will the regulatory framework permit at least a normal return on investments? Or will regulatory opportunism result in under-recovery? These concerns should, frankly, be a very minor consideration for the Commission in this process. The Commission applies best practice and transparent processes, and is applying a pricing principle (TSLRIC) that is recognised as providing above-normal returns on original investments. There is no credible suggestion that either is a legitimate concern of properly informed investors in New Zealand.

The Commission’s “orthodox” approach is already out-dated and must therefore detract from predictability

62. If an “orthodox” approach to TSLRIC is to be taken, and applied for the first time, in 2015, surely the only “predictable” way of applying an orthodox approach is to ensure it reflects the most up-to-date thinking and trends in TSLRIC application? Because if the “orthodox” application is not current, that must imply it will need to change sometime in the near future. That cannot deliver predictability.

63. Yet this is exactly the approach the Commission has taken, and has claimed will promote predictability. Specifically, in concluding that the use of ORC for all assets represents the “orthodox” implementation of TSLRIC, the Commission relies on a survey of regulators’ approaches which it claims show that 8 of 9 apply ORC and do not consider asset re-use. What the table does not disclose is that all 8 such regulators are required to apply asset re-use by 2016. So by 2016, what the Commission now assures us is “orthodox” for the purposes of price setting out to 2020 will be out-dated.

Chorus has not presented any evidence of the benefits that will accrue to end-users from an emphasis on predictability or orthodoxy

64. We submitted that the Commission had not quantified what benefits an emphasis on predictability and orthodoxy would deliver to end-users, or shown that these benefits exceeded those from an alternative approach. We have the same criticism of Chorus’ submission. It speaks generically of investment incentives, risks of under-recovery, the need to invest in maintaining, upgrading and replacing its assets. But it shows no evidence that the Commission’s approach to predictability and orthodoxy will be determinative of any of these things in any way that delivers demonstrable benefit to end-users.

65. As we touch on elsewhere in this submission:

- a. There is no suggestion any TSLRIC price mooted in this process will lead to an under-recovery by Chorus of its existing assets. Chorus will categorically continue to receive an above-normal return on continued maintenance on, and upgrading of, those assets, even at IPP prices. If it does not believe this to be the case, then it needs to show some evidence to support this claim;
- b. Investment in replacement infrastructure is already occurring, and is committed for all but a few lines. Where UFB and RBI have not yet subsidised Chorus’s replacement infrastructure, they have created a strong incentive for Chorus to minimise investment in the expectation of further expansions of those schemes. This is outside the Commission’s control. Even putting all of this aside, Chorus can, again, show no evidence of how it might conceivably under-recover on a future investment as a result of IPP pricing.

66. The Commission must remove its emphasis on predictability and revise its view of “orthodoxy” in order to avoid clear error of law in the same way it has removed its investor expectations test. We note with concern, though, that the removal of what was the centre-piece of the Commission’s first set of TSLRIC principles (the investors’ expectations test) resulted in no discernible change to the Commission’s position on any of those TSLRIC principles. Instead, the Commission appears to have substituted predictability and orthodoxy for that test, with the same results. This time, in order to avoid review, the Commission must be able to show that it has actually changed its TSLRIC approach, with observable effect.

The MEA

67. The Commission proposes that the choice of the modern equivalent asset (MEA) is driven by the “core functionality” of the UCLL service, i.e. the ability to provide voice and broadband services to end-users. 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. For example, less weight is given to the ability to unbundle in areas where unbundling is unlikely to be feasible.¹⁴

68. Accordingly, the Commission proposes that FWA meets its definition of core functionality and is therefore eligible for consideration as the MEA for UCLL.¹⁵ However, 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:¹⁶

- a. 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
- b. In areas outside the RBI FWA footprint, unbundling is more feasible and greater weight should therefore be given to technologies that can be unbundled.

69. Conversely, Chorus proposes that the core functionality must include (at a minimum) the functionality to make the service consistent with the description in Schedule 1 of the Act, i.e. the core functionality of UCLL must include the ability to be unbundled. It suggests the Act requires the Commission to model “the facilities and functions that are directly attributable . . . to the service”, and that there is no ability to abstract away from the functionality of the service mandated by the Act.

70. Chorus claims that FWA is not capable of delivering either the full functionality or core functionality of the regulated service

71. Chorus' position is wrong. As explained below, it will result in an application of TSLRIC that is inconsistent with any proper construction of TSLRIC, and with section 18.

The Commission has discretion in deriving efficient TSLRIC costs

72. The Commission’s legal obligation under the Act is to use TSLRIC to establish a price for the UCLL service that best meets the section 18 purpose.

73. Although the task is to set a price for the UCLL service (as defined in the Act and STD), there is nothing in the Act that supports the proposition that elements of the Commission’s TSLRIC model

¹⁴ Draft decisions, paragraphs 524 -530.

¹⁵ Ibid, paragraph 534

¹⁶ Ibid, paragraph 524 and 531.

are specified or constrained by the Act, the STD, or by the current features of the service which is purchased by access seekers.

74. The Commission is required to use TSLRIC to determine an efficient price for the service based on efficient costs. The Commission may need to step away from the specific details of the service description in the Act and/or the STD where those details would otherwise prevent it from properly identifying efficient forward-looking costs.
75. Although the FPP directs the Commission to apply TSLRIC specifically to Chorus' UCLL service, the definition of TSLRIC does not tell the Commission how to identify and value "the forward-looking costs over the long run of the total quantity of the facilities and functions...". As the Commission has correctly noted, "the definition of TSLRIC in the Act is broad and provides limited practical guidance on the various choices that need to be made when undertaking a cost modelling exercise".¹⁷
76. Having said that, the concept of "efficiency" incorporated into section 18 does provide some guidance when seeking to interpret the definition of TSLRIC. For example, "forward looking costs" is not defined in the Act. But, all parties have agreed that this can't be Chorus' current costs - as those costs cannot be efficient. Similarly, "facilities and functions of the service" is not defined. But, following the same logic, this can't be the facilities and functions that are currently provided - as those might not be efficient now or in the future. As appears to be accepted by all, a degree of abstraction is required. The open issue is how far that abstraction can go.

The Commission must remain focussed on efficiency in applying that discretion

77. The theory underpinning TSLRIC, as put by the ACCC in the past, is that it "is consistent with the price that would prevail if an access provider faced effective competition, and it usually best promotes the long term interests of end users".¹⁸ On that basis, TSLRIC, if properly applied, will result in a price consistent with section 18. It will do this by setting efficient pricing signals, encouraging efficient provision of the regulated service and efficient investment by access seekers and the access provider that benefit end users.¹⁹ In that context:
 - a. It is a price that best mimics the price that could be expected in a competitive market; and
 - b. In contrast to other forms of regulation, generating a fair return on Chorus' actual (efficient) investment is not the purpose of the exercise.
78. Ultimately, the Courts have been clear that it is efficient prices that matter. To provide the right signals, including the right investment incentives, prices should be based on efficient costs. In addition, when it comes to investment incentives, it is the interests of consumers in regulated suppliers having sufficient incentives to invest which matters, not the interests of suppliers themselves. For example, the High Court in the IM Judgment was clear that the tendencies in workably competitive markets are towards normal returns and prices based on efficient costs.²⁰ The Court noted that:²¹

By themselves, these tendencies will also lead towards incentives for efficient investment (investment that is reasonably expected to earn at least a normal rate of return) and innovation. That is to say, the

¹⁷ Commission Draft Determination at para 123.

¹⁸ As cited by the Competition Tribunal at para 71.

¹⁹ See Telecom "UCLL and UBA FPP: consultation on regulatory framework and modelling approach - Submission Commerce Commission" 6 August 2014, paragraph [24], as cited by the Commission in the UCLL Draft Determination at 144.

²⁰ Ibid, paragraphs 14-19.

²¹ Ibid, paragraph 20

prices that tend to be generated in workably competitive markets will provide incentives for efficient investment and for innovation.

79. Regulatory purpose statements that speak of protecting the long-term interests of consumers were not introduced to promote suppliers' interests. In terms of incentives to invest, it is the interests of consumers in suppliers having appropriate incentives to invest that matter, not the interests of the suppliers themselves.

80. However, as has been explained by the Commission's experts, the application of "classical" TSLRIC to obtain a price that meets the section 18 purpose statement is very challenging when the regulated service will become obsolete in the foreseeable future:

Since a large portion of the copper-related costs are sunk and some over capacities develop, true forward-looking costs will therefore be much lower than TSLRIC as traditionally calculated by regulators.... Summing up, in the face of long-term declining demand relying on the TSLRIC standard for the old technology would induce unnecessary over-capacities and allocative inefficiencies in copper networks.²²

New challenges, however, arose from fixed-to-mobile substitution and from UFB, which both challenged the assumption that the relevant market for copper-based services was increasing. Thus, the fiction that firms needed to invest in the newest technology for all assets required to perform the service was no longer tenable.²³

81. In short, the forward looking costs of providing the UCLL service are now very low, and certainly don't include replacing the copper access network.

82. As now appears to be common ground in this process (with the exception of Chorus), there is a solution to this problem. As Professor Ingo Vogelsang has advised:

While traditionally calculated TSLRIC-based wholesale charges become problematic in shrinking markets, such as that for copper-based UCLL and UBA, the function of TSLRIC can be fulfilled by modern equivalent assets (MEAs) to which the customers of the old services eventually migrate.²⁴

83. This leads to the position that, as stated by Professor Vogelsang:²⁵

- a. A MEA should be applied, as a natural part of TSLRIC, instead of the technology currently in use if no one would rationally invest in the old technology but only in the new technology;
- b. It is a common view today that FTTH and wireless access services serve as MEAs for copper-based UCLL and UBA.

84. It therefore appears to us that there is a direct conflict between two competing positions, with no middle ground. Either:

- a. The Commission continues with its current approach, as advised by Professor Vogelsang and supported by all parties with the exception of Chorus, of using an MEA of FTTH and

²² Ingo Vogelsang, "Current academic thinking about how best to implement TSLRIC in pricing telecommunications network services and the implications for pricing UCLL in New Zealand", 25 November 2014, at para 10.

²³ Ingo Vogelsang, "Current academic thinking about how best to implement TSLRIC in pricing telecommunications network services and the implications for pricing UCLL in New Zealand", 25 November 2014, at para 74.

²⁴ Ingo Vogelsang, "Current academic thinking about how best to implement TSLRIC in pricing telecommunications network services and the implications for pricing UCLL in New Zealand", 25 November 2014, at para 13.

²⁵ Ingo Vogelsang, "Current academic thinking about how best to implement TSLRIC in pricing telecommunications network services and the implications for pricing UCLL in New Zealand", 25 November 2014, at para 87.

FWA. This is the best way to stay true to the TSLRIC concept in the face of migration from the copper network; or

- b. Accept Chorus' approach that, while the Commission is not constrained to selecting a MEA technology that is the same as Chorus' existing network (see footnote 126 of Chorus' submission on the draft decision) the entire MEA must be unbundlable, such that any technologies that differ from those used in Chorus' existing network (like fibre and FWA) are excluded. This would lead to the over compensation problem explained by Professor Vogelsang.

85. In our view, the best way for the Commission to apply TSLRIC in a manner consistent with section 18 is to continue with the fibre/FWA MEA. The Act allows this. It provides the Commission with a flexible and broad legal definition of TSLRIC, so that it can appropriately construct the MEA to deliver a price that meets the section 18 purpose in the current real world circumstances. In making those decisions, the Commission must be guided by the purpose of the TSLRIC exercise - to deliver an estimate of price that would prevail in a competitive market.

86. It should also be guided by the considerations that:

- a. Section 18, which governs the price to be set in the interests of end users, is technology neutral and is focussed on the long term. In that context, functionality from the perspective of end users is what counts, i.e. voice and broadband, not unbundability;
- b. The service description for UCLL does not provide guidance on price, and is necessarily focussed on current copper technology, as its purpose is to define the which service is subject to regulation.

87. Accordingly, it makes no sense when constructing the MEA to be guided or constrained by the features of the existing service, or the service description in the Act. The fact that the existing service will soon be redundant in the real world is the source of the challenge for the TSLRIC exercise - not the solution.

88. The issue that the Commission must now focus on is to determine the appropriate extent of FWA within the MEA.

89. We made our views clear on this in our previous submission. We have now reviewed Vodafone's submission, and support its views.

Chorus' proposed approach cannot meet the efficiency objectives of the FPP

90. Seeking to apply Chorus' model further illustrates that it can't provide the expected outcomes of a TSLRIC model.

91. As noted above, TSLRIC pricing model needs to abstract away from inefficiencies of today's network in order to signal efficient choices by access providers, RSPs and consumers. These choices are not derived from the current network, but reflect the real alternatives available to the parties. In other words, the pricing signals must be relevant to the market and participants – access provider, RSPs and end users.

92. Chorus' proposed approach, however, embeds the current technology and network costs in the model and is thus incapable of providing these signals. For example, as noted by the Commission the TSLRIC approach seeks to provide efficient signals, including:

- a. Provide access providers with efficient investment signals. A TSLRIC model based entirely on copper costs cannot achieve this. As Professor Vogelsang notes, no party is investing

the copper network we have today. Chorus has minimised investment in the copper network, and is rolling out a replacement fibre network in urban areas;

- b. Signal to access seekers efficient build/buy decisions. Again, access seekers are not expected to roll out copper or fibre networks in competition to Crown subsidised UFB networks, and are not constrained from rolling out FWA networks for rural consumers. Failing to reflect FWA costs will therefore result in inefficient under-use of the existing network; and
 - c. Signal to consumers to make efficient use of the network. The actual forward looking costs to provide a network are less than half those in the draft determination meaning end users will drop off the network, and the network will remain inefficiently under-used. Chorus' proposal would exacerbate this effect.
93. Chorus's approach significantly overstates the cost of using the Chorus network by a factor of two, meaning that there will be no useful signals for investment or use of the platform. In other words, the prices could not provide any useful efficient price signals because they bear no relationship to any of the choices faced by any of the parties. Chorus seeks to define the modelling methodology in way that can't deliver the benefits that underpin a TSLRIC pricing methodology.
94. Conversely, the Commission's approach that captures technologies capable with core capabilities of supporting voice and broadband services can perform this function. The Commission criteria extends beyond voice and broadband capacity through the additional criteria set out in the TERA MEA paper, i.e. that the technology is available and able to be deployed. In the other words, by referencing what is actually occurring in the market, the Commission decision is being informed by criteria derived from market activity and outcomes. This better ties the MEA functionality with what the FPP is about, identifying competing alternatives and costs.

The Commission should not constrain FWA deployment

95. Operators today are deploying fixed wireless access networks capable of providing layer 2 like functionality and, at a deeper level, radio access network (RAN) sharing by multiple operators are being increasingly deployed.
96. The RBI initiative, referred to by the Commission in the draft, further indicates that wireless technologies are able to support services that are reasonable alternatives for operators and end users. Looking further afield, wireless technologies form a key part of the Australian NBN network. Analysys Mason, in reviewing whether NBN infrastructure designs reflected those of a prudent and efficient network design, noted that NBNs use of fixed wireless technologies in a FTTP/FWA/Satellite mix was a prudent and efficient approach which avoided NBN incurring disproportionate costs in meeting the Government policy objectives.²⁶
97. An efficient operator would look at the relative costs of particular platforms to determine the efficient breakpoint for determining the boundary of the fixed and wireless network footprints. However, the Commission proposes to limit FWA deployment to that of Vodafone's RBI deployment. Chorus submit that, for a number of reasons, that the FWA deployment should be constrained further.
98. The Commission should not limit FWA deployment by RBI or the presence of unbundled lines, because the extent of FWA deployment will depend on the relative costs between fixed and wireless technologies. In other words, the focus should remain on efficient forward looking costs, and reflecting these in the relative costs and economics of the technologies rather than on

²⁶ Report referred to by NWS in its cross submission report, section 2.4.

specific constraints. As it has previously when considering this issue, the Commission should apply a wireless cap. We do not know what the extent of the wireless cap would be – this will be determined by the relative efficiencies between fixed and wireless technologies that are still being considered – but the model should at least permit the most efficient technology to be deployed for a particular region.

UBA MEA

99. Submissions on the appropriate UBA MEA take opposing, and mutually exclusive, views:

- a. Chorus submits the Act requires the Commission to use Chorus' existing FTTN/Copper network for the UBA MEA;²⁷
- b. Clifton Chambers, on behalf of Vodafone, submits the Act requires the Commission to use the same MEA for UBA as it has for UCLL (i.e. FTTH).²⁸

100. Spark has consistently maintained that the Act permits the Commission greater discretion than either Chorus or Vodafone advocates. The Act does not require the Commission to use a MEA in the first place, which seems to us to preclude any statutory interpretation argument that it nevertheless requires the Commission to adopt any specific MEA.

101. We have also continued to argue that the Commission – if it chooses to use an MEA – is required to exercise its discretion in choosing that MEA in a way that:

- a. Accords with the final UBA pricing principle; and
- b. Best gives effect to s18.

102. This requires at the very least a proper consideration of the options before the Commission, and an informed choice as to which of those options best meets these two requirements. To date, the Commission has not undertaken this exercise, incorrectly stating that its choice of MEA is constrained by the Act.

103. Chorus, for its part, asserts that only a copper MEA for UBA will create the “right” build/buy incentives for the service without elaborating on why this must be the case.

104. We note that, whereas creation of build/buy incentives can form part of the Commission's set of objectives in a regulatory price-setting exercise, current market conditions make it a relatively less important objective than it might otherwise be. In particular, the deployment of a subsidised FTTH network covering at least 80% of lines has significantly reduced any realistic commercial incentives to “build” UBA facilities through unbundling.

105. In this regard, we refer the Commission to the ACCC's remarks summarising its view on the relevance of build/buy signals in the Australian context (where the NBN was deploying a replacement network for Telstra's CAN) in a 2011 discussion paper:²⁹

The ACCC considered that the efficient 'build/buy' incentives promoted by a DORC approach are less relevant in the current environment of an aging copper network and the delivery of services across a variety of emerging technologies. It recognised that Telstra's copper CAN clearly displays enduring

²⁷ Chorus submission, 20 February 2015, paragraph 195.

²⁸ Clifton Chambers submission on behalf of Vodafone on MEA for UBA and UCLL services draft determinations, 11 February 2015, paragraph 3.

²⁹ <http://www.accc.gov.au/system/files/Discussion%20paper%20-%20FADs%20for%20fixed%20line%20services%20-%20public%20version.pdf>, page 52

bottleneck characteristics, rather than being a network likely to be bypassed through technological or market development.

Inefficient duplication of CAN infrastructure is unlikely. The ACCC concluded that a replacement cost pricing approach like DORC, with its rationale of providing efficient 'build/buy' signals, is less applicable in the present environment.

The ACCC also highlighted its concern that a DORC valuation would compensate the access provider for investments it has not actually made and this could distort investment incentives. In addition, estimating hypothetical costs to obtain a DORC valuation would be a complex, subjective exercise that is less transparent and verifiable than using actual costs under a DAC approach.

106. The debate in Australia was, as the Commission knows, directed at the replacement of the TSLRIC pricing principle. This is not an option before the Commission in this process. But it is absolutely right and necessary for the Commission to consider whether, and to what extent, it places weight on build/buy signals within its TSLRIC exercise. In our view, our market context suggests very little weight should be put on achieving these signals as an end in itself.
107. We prefer, for example, the objective of creating efficient price signals that approximate those we would expect to see in a competitive market (and for the same reason, do not support the creation of any "economic space" in the setting of a UBA price).
108. Putting this concern over the relevance of build/buy signals aside though, we note that even if build/buy incentives were paramount in the Commission's decision-making framework, this would still leave open the question of which MEA is preferable. Chorus' argument relies upon an assumption that the "right" build/buy incentives can only be provided by a copper UBA MEA.
109. The TSLRIC exercise is designed to estimate the prices that would exist in a competitive market, so as to ensure that end-users see the benefits – the efficiency gains – that competitive markets drive. The "right" build/buy signals are those that best approximate the efficient forward-looking costs for the service. Just because an access seeker might need to buy DSLAMs and other DSL-based equipment in order to provide its own UBA service using Chorus' actual network, that does not necessarily mean that a Copper UBA MEA will provide the "right" build/buy signals. By definition, for example, this MEA will import the inefficiencies of Chorus past network choices – choices that a competitive market would not be bound by.
110. If a UBA MEA based on fibre electronics resulted in a UBA price that was cheaper in parts of the country than an access seeker could build a UBA service using Chorus' existing copper network that may still be the most efficient UBA price for end-users. In fact, it very likely will be, because it will represent the efficiencies that would have been available to end-users had there been competition in the market.
111. We think the Commission has discretion in its choice of UBA MEA. We expect the correct answer – the best application of s18 and the TSLRIC pricing principle – will be the use of a MEA that utilises fibre electronic equipment. A layer 2 fibre bitstream service is already in the market and provided by Chorus so identifying additional electronics and other costs associated is entirely possible. Use of a fibre MEA as the layer one component is also internally consistent with the Act (as pointed out in the Thorndon Chambers opinion) and accordingly should be considered. We could very well be wrong about the best answer, or the Commission may very well exercise a different judgement. But it cannot choose not to have a view, or to exercise its judgement, by claiming it has not choice to make.

Asset valuation

Dealing with replacement costs

112. The Commission uses an ORC methodology for all assets in its draft determinations, irrespective of whether those assets:

- a. Are capable of re-use; or
- b. Have been, or will be, funded by third parties.

113. Chorus supports the Commission's decision, and in fact argues that the Act mandates this approach:³⁰

"The TSLRIC for the service must take account of the replacement costs of all assets the HEO would deploy to provide the service"

114. Further, it argues this must be the case even where this does not reflect real-world practice:³¹

"In the real-world, a company could seek to recover its costs through a mixture of pricing and upfront contributions from RSPs and end-users. However, the FPP for UCLL specifies that TSLRIC of the service is to be recovered through the UCLL price, not only partly through the UCLL price."

115. This argument reads a concept – replacement cost - into the Act that is simply not present. It is precisely the same argument made by EDBs and GPBs in the Commission's Part 4 process, who all argued the Part 4 statutory references to "workably competitive" markets imported the concept of replacement cost into the Commerce Act. In that process, the Commission rejected the argument, and concluded that:³²

replacement costs are only one of a number of influences on the value of a specialised asset in a workably competitive market

116. As we have previously noted, and the Commission has confirmed, the TSLRIC exercise has at its heart the very same purpose – to mimic to the greatest extent possible the outcomes of a workably competitive market. And for the very same reason, Chorus must be wrong in its attempt to read in a requirement in our Act for a full replacement cost valuation.

117. In fact, what the Act does require is forward-looking costs. Forward looking costs must be both:

- a. Forward-looking (ie likely to exist in the future). Where assets are likely to be re-used, complete replacement costs for those assets cannot be said to be forward-looking; and
- b. Costs (ie actually incurred by the access provider). Where assets or work is funded by a party other than the access provider, they are not costs to that provider.

118. This forward-looking cost requirement provides the link between the hypothetical nature of the TSLRIC exercise and the real-world. It ensures, amongst other things, that:

- a. End-users do not pay twice for the same assets;
- b. End-users do not pay for replacement costs that Chorus can and will avoid; and

³⁰ Chorus submission, paragraph 95.

³¹ Ibid, paragraph 103

³² Commerce Commission, EDB, GPB Input Methodologies Reasons Paper, December 2010, para 4.3.38.

- c. The Act can continue to evolve with the technologies and markets in question. If, as seems undeniable, a competitive market would utilise wireless technologies to serve an increasing amount of the country, then the Act must be able to reflect that reality. A slavish adherence to past network architectures is completely at odds with incentive-based regulation, which is categorically not concerned with providing a rate of return on any specific assets.

119. We have previously referred to New Zealand and Australian judicial consideration of replacement cost methodologies, in particular the decisions by the New Zealand Supreme Court in *Vodafone v Telecom* [2011] (the TSLRIC decision) and High Court in *Wellington International Airport and Others* (the IM decision). A common principle evident in each of those decisions is that New Zealand Courts will resist the application of replacement cost methodologies to assets that will not, in the foreseeable future, actually be replaced by the access provider.

120. Wigley + Company reaches the same conclusion in its submission, and refers the Commission to the following statement from Blanchard J, delivering the judgement of the majority in *Vodafone v Telecom* [2011] NZSC 138, which summarises succinctly the current judicial position:

The Commission's use of ORC failed to address, however, the distortion caused by artificially revaluing old assets (already wholly or partly depreciated) which were in reality not likely to be replaced and optimised. It is sensible to revalue on an optimised basis, say, a switch by attributing to it the lower value (price) of a new switch which performs the same or better function but is able to be acquired at a lesser price. It is quite another thing to attribute a modern equivalent value to an old asset which is not actually being replaced and for which no replacement would sensibly be introduced. All that does is to artificially inflate the value of the old asset and provide a windfall for the firm in terms of an enhanced return on and of capital employed. This emerges starkly in relation to the very significant value attributed to installed copper wire in the PSTN, the attributed replacement value of which is in large measure the current cost of putting it in the ground. It cannot be right, where the ESP is supposed to be a proxy for a firm which will continue to employ old assets, to attribute a new (2001) value to them, including the cost of work notionally needing to be done if the assets were being newly installed (in the ground).

121. Russell McVeagh outlines in more detail, in the attached opinion, how New Zealand and Australian Courts have consistently applied this approach in each of the cases brought before them. The Commission's current proposed approach is not reconcilable with the view of new Zealand's highest courts. The Commission simply cannot use ORC for assets that will not be replaced by Chorus.

122. The Commission has distinguished the current process from that ruled on by the Supreme Court on the basis that:

- a. The TSO net cost calculation was backward-looking, being concerned with the efficient cost of providing services in a given past period; whereas
- b. The current process is forward-looking.

123. We do not agree that the fact the TSO process set prices for a specified period that was in the immediate past, rather than in the immediate future, distinguishes it sufficiently from the current process. We cannot understand how this might affect the application of s18 in such a way as to lead the Commission to the exact opposite asset valuation conclusion. In each case, the Commission is modelling the long-run incremental costs of the network in question on a forward-looking basis.

124. As Wigley + Company correctly points out, the Commission, in making its numerous TSO decisions, has consistently clarified that it has taken a forward-looking modelling approach in its

calculation of the TSO net costs that is intended to be consistent with its approach to TSLRIC modelling.

125. And as seems clear from Blanchard J's statement above, the Court's concern was with the principle of replacement cost values being applied to assets that are not being replaced and for which no replacement would sensibly be introduced. The temporal nature of the exercise is not relevant to this principle.
126. In fact, the principled concern applies just as equally in the present context, if not more – because we now have clear market evidence to support the assumption (re-use of assets) the Supreme Court had to make at the time of its decision.
127. The Commission has repeated the error it made during the TSO modelling process, and must correct it. It must do so by adopting alternative valuations for those assets that:
- a. Chorus is not replacing and cannot sensibly be expected to replace. This will include much of its trenching and ducting assets, and may extend to its copper assets in non-UFB areas; and
 - b. Have been and/or will be funded by third parties. This will include lead-ins and contributions provided to Chorus as part of the UFB, RBI and TSO schemes.

Re-usable assets

128. Network operators invest significant sums in infrastructure every day. To manage what are complex investment programmes, we deploy investment tactics and rules, to ensure investment is made in the most efficient and cost-effective way possible.
129. Where we are faced with a need to migrate off legacy infrastructure, which is not an unusual occurrence, we typically face choices as to whether to invest in entirely new assets, to re-use existing assets (this often requires that we spend money in order to extend their lifetimes), or to do a mix of both. The tactics and rules we apply in making these decisions trade-off cost effectiveness with capability.
130. In considering cost effectiveness, we compare the costs of upgrading or extending the life of existing assets, plus the opportunity cost of those assets, to the cost of deploying entirely new assets.
131. Chorus, in deploying its UFB FTTH network, faces this exact same choice. It has described its investment tactics for that project as reusing as much of the existing network as we can for the UFB deployment, and identifying opportunities to work with councils and utilities to reduce deployment costs:

*"Wherever economically viable existing trenching will be used, otherwise new trenching or aerial deployment will be used."*³³

*"Wherever economically viable the existing copper connection "lead-in" duct or pole infrastructure will be utilised"*³⁴

*"We'll be using as much of the existing network as we can for UFB deployment..."*³⁵.

³³ Demerger of Chorus Limited by Telecom Corporation of New Zealand Limited Scheme Booklet, page 98.

³⁴ Ibid, p98.

³⁵ Transcript of May 2012 Chorus Investor Day, page 11.

132. On a forward-looking basis then, any real world operator planning a major network infrastructure project will expect to deploy entirely new infrastructure in some cases, and to re-use existing assets in others.
133. Chorus suggests that our Act requires the Commission to ignore this reality. Even though Chorus, and other network operator, would re-use assets, and would therefore never face the cost of a full replacement cost network, it suggests the Act requires that it be compensated as if it would. That argument is simply untenable and leads to a circularity in the application of TSLRIC. It suggests the Commission must:
- a. Apply TSLRIC to reflect all of the efficiencies a hypothetical efficient operator would achieve in order to (amongst other things) provide incentives on Chorus to also achieve those same efficiencies; but
 - b. Preclude that hypothetical efficient operator from accessing a set of efficiencies that Chorus already accesses.
134. The better interpretation is Parliament intended the Commission to set prices at levels that would be reached in a workably competitive market, sharing with end-users all of the efficiencies that network operators in such a market would take advantage of, including re-use of assets.

Lead-ins are funded by end users directly

135. Chorus argues that capital contributions it receives from third parties (end-users) should be ignored by the Commission in its modelling. It goes so far as to say that accounting for these capital contributions in the Commission's model will result in "an underestimate of the costs required to maintain the existing network footprint."³⁶ This is a rather novel argument – Chorus is in effect arguing that the only way to ensure continued investment in the existing network footprint is for end-users to pay twice for these assets (predominantly lead-ins, but also including network extensions outside the 2001 TSO footprint). Not only does this defy common sense, it is fundamentally at odds with the Act, including the requirement on the Commission to avoid double recovery of costs.
136. The correct application of the Act is to exclude the capital costs for those assets that have been, and/or will be, paid for by contributions from end-users (including indirectly as taxpayers funding the Government's UFB and RBI schemes) from the Commission's models. Ongoing maintenance for these assets will, in contrast, be faced by Chorus (where it is not on-charged to end-users or RSPs through transaction charges for items such as truck-rolls) and should be factored into the model, as we understand is presently the case.
137. Chorus, in the alternative, then argues that if capital costs that are paid for by other parties are to be excluded, suggests they be treated simply as a one off payment. This is presumably on the basis that Chorus expects it will face the costs of replacing those assets itself at the end of their economic life. We first note that, given the lifetime for these assets far exceeds the period for which the Commission is regulating (and the reasonable expectation that many of these assets will outlive this lifetime), the effect of this question on the modelled costs can best be assumed to be de minimis and ignored. We assume there is a (low) level of existing replacement of lead-in assets undertaken by Chorus, and agree that this level of ongoing cost should be reflected in the model, but no more.
138. In addition, though, we also note the significant uncertainty as to who will actually pay for the replacement of these assets in practice.

³⁶ Chorus submission, paragraph 97.

139. Whereas Chorus has, for some number of years, been compensated at levels that imply ongoing and significant investment in replacement of its local access network, this investment in practice has not occurred. Moreover, now that this replacement is occurring on a significant scale, it is being paid for in large part by the end-user (via Government).
140. As we have set out above, the TSLRIC principle mandates forward looking costs and not replacement costs. To include costs that are not faced by Chorus today, and are not expected to be faced by it in the foreseeable future must be overstating the cost of the network, and is not an available option to the Commission.
141. In this respect, we re-iterate the facts about Chorus' investment tactics for lead-ins:
- a. Chorus' existing Copper Service Lead-in policy requires that end-users pay for non-lead-ins, including providing trenching and re-instatement;
 - b. Chorus' new (replacement) fibre lead-ins are explicitly funded by Chorus only in return for:
 - i. In respect of standard installations, receiving UFB subsidies from the Government; and
 - ii. In respect of non-standard installations, receiving forbearance from CFH for breaches of its undertakings and greater flexibility in its deployment requirements and earlier access to funding (up to a cap of \$28 million).
142. Chorus, as any commercial entity would do, seeks to avoid or pass-on capital costs wherever possible. The Commission's model must reflect this reality.

UFB and RBI contributions

143. The Government's recent announcement of its UFB2 and RBI2 funds captures, in a very real way, the concerns we have with the approach proposed by Chorus to asset valuation, and its claims about its investment incentives. These are the same concerns we have with the Commission's proposed approach.
144. Chorus is not investing in replacement infrastructure at the socially-optimal rate, or at the rate implied by the Commission's regulated pricing. As a result, the Government has granted Chorus subsidies (we acknowledge that the UFB contributions are described as loans, but as NWS has previously advise, their nature means the Commission can consider them as grants for these purposes) worth \$1.2 billion to replace much of its copper network with FTTH (UFB1) or FTTN (RBI1). These capital contributions "solve" in a very real sense replacement investment incentives for the very large majority of lines.
145. In response to this situation, which common sense suggests would result in lower future funding for Chorus from its regulated access products, Chorus proposes that the Commission should,:
- a. First, ignore these contributions and price UCLL at a level that assumes that Chorus pays for all of this network replacement itself. In other words, pretend end-users haven't already paid for the infrastructure in question and require them to pay for it a second time; and
 - b. Second, apply a series of conservative model design principles to protect Chorus' incentives to make the investments that have already been committed to and, in many cases, paid for by end-users. This amounts to asking end-users to pay for the same investment a third time.

146. Now, the Government is proposing to allocate a further amount (up to \$310 million) towards FTTH and FTTN extensions beyond the UFB1 and RBI1 boundaries. Let us assume, conservatively, that Chorus receives \$150 million of this amount and that this increases again the “solved-for” component of the network by at least another 5% of lines
147. The same concerns with double and triple recovery arise in respect of the assets funded by these funds, but a further concern now arises about Chorus’ commercial incentives to make any further investment in the remaining parts of its network. The announcement of UFB2 and RBI2, create the very real prospect, if not expectation, that they will in time be followed by versions 3, 4 and 5. They will have the inevitable effect of dampening Chorus’ incentives to invest commercially in the remaining parts of its network not already covered by the UFB and RBI schemes. Investment in these areas is the hardest and least economic. If there is a prospect of it being subsidised (and if the best way to realise this prospect is to avoid making the investment itself) a commercially rational firm will avoid making that investment. They simply must, because the incentives to do so are so strong.
148. Stepping back then, replacement infrastructure for the majority of Chorus’ network is already committed, and the incentives on Chorus to invest in replacement infrastructure in the remaining areas of its network are weak and out of the Commission’s control. Relatively speaking then, the objective of protecting investment incentives should be of less relevance in this process than it might otherwise be in countries where investment in the replacement infrastructure is much more uncertain (this question occupies a considerable amount of time in Europe for example).
149. We simply cannot reconcile this context, and the conclusions it leads one to, with the suggestions made by Chorus and the Commission about the importance of protecting investment incentives, and the need to emphasise that as a s18 objective.

Model parameters

150. Chorus and Analysys Mason propose a number of changes to the model inputs. The practical effect of these changes is that the TERA model will mirror Chorus’ network and operating model, pushing additional costs in to an already inefficient draft model.
151. As set out above, TSLRIC seeks to provide efficient signals to providers and consumers. The net effect of Chorus’ proposals is that the Commission would effectively be applying a rate of return model. However, contrary to a rate of return model which seeks to provide a return on actual prudent and efficient investment, Chorus argues for a replacement cost methodology which means it would gain a return on investment that has not and may never be made. Rather than apply an internally consistent framework across the modelling exercise, Chorus is looking to cherry pick the most advantageous parts from different regulatory approaches, inflating prices to consumers in the process.

Updated FWA model parameters

152. NWS has developed a robust FWA model that can be used along with the existing TERA model to determine the efficient costs to provide access in particular regions.
153. Chorus and Analysys Mason have criticised a number of inputs and assumptions used in the Commission’s FWA model, including the assumed throughput over the regulatory period, cost components and assumed coverage of the Commission’s model.
154. NWS address these concerns in the attached report:
- a. Reflecting data throughput demand growth in the wireless model. NWS has revised FWA costs with assumed year on year data. NWS cautions that the assumed growth should not

be applied across all lines as many lines don't - or are incapable of - supporting broadband services and will not contribute to platform demand;

- b. Rejecting Chorus proposals to add additional CPE and spectrum cost components. NWS note inconsistencies in Chorus and Analysys Masons proposed approach, CPE costs and core infrastructure costs are not included in regulatory cost models as claimed. Further, spectrum costs in the Commission model is more likely to overstate the spectrum costs for rural areas.

We note that all services – whether it's UCLL, fibre or FWA – require some customer premises equipment. [] **SPKCI** CPE costs are much the same across all technologies. For example, [] **SPKCI** In other words, the copper line access provides RSPs no CPE cost reduction over alternative access technologies; and

- c. Contrasting Chorus proposed coverage limitations with the comprehensive assessment of costs and implied coverage estimated by the NWS model. NWS conclude that an efficient provider would not confine FWA to RBI areas, but would cost efficiently extend service in to zone 3 towns. Further, modern technologies are less susceptible to failure rates (locations within an area where service is not available) than suggested by Chorus, and the NWS model is based on detailed RF planning to achieve 100% customer coverage and installation of repeaters.

155. Further, in terms of external CPE to improve service, this is also no more than required for UCLL/UBA. There is no performance guarantee for UCLL and UBA based services, and performance is patchy. Chorus will only address performance issues at the customer expense, i.e. RSPs are charged to address poor broadband performance or to install splitters at the customer premises. There is no evidence to suggest that FWA access performance is more variable than the fixed network and, given the comprehensive RF planning undertaken, is more likely to be consistent over the FWA network.

156. NWS has updated the FWA and this can be incorporated in to the TERA model, providing a cap on fixed deployment costs to ensure efficient costs.

Technical Inputs

157. Chorus and Analysys Mason suggest a number of alternative parameters based on Chorus' actual costs. As set out in our previous submissions, Chorus costs are not efficient as they are based on path dependencies and fail to reflect the economies that would be gained from scale network deployment. For example, we wouldn't expect Chorus to fully exploit aerial deployment as it has access to an existing duct network that it can use at minimal cost, if any. However, an HEO that faced the full replacement cost of ducts would seek to use the lower cost aerial deployment wherever possible. In fact, this is what we have seen with other LFCs making extensive use of aerial deployment.

Trench costs

158. WIK identify that Chorus' proposed trenching cost approach has significant flaws and cannot be relied upon to reflect efficient costs.³⁷

159. Analysys Mason in section 3.2 of their expert report argue that the BECA classification should be adapted for the TSO area to avoid using rural trench cost for a heavily urbanised trench network. WIK disagree with this assertion in paragraph 111 and state that the urban trenching

³⁷ WIK cross submission report, section 4.

costs will not be influenced by the costs for non-urban areas and that the TSO boundary is not relevant to the non-urban soil classes.

160. WIK also point to the fact in paragraph 116 of their report that the model uses duct installation rates for directional drilling and chain trenching which are too high, and which result in an overestimate of more than 25% for the corresponding costs. TERA has applied a uniform mark-up of 20% to duct material and duct installation across rural and urban deployment for other deployment modes. This mark-up is unsubstantiated.
161. Chorus claims that the TERA model misses service company overhead and complexity of the deployment. However, the usual modelling approach is to build these costs in to the per metre cost and this is the approach the Commission has taken. Therefore, by seeking an addition increment, Chorus is asking the Commission to double count these costs and should be rejected.
162. Chorus further asks for further adjustments for urban and particularly Auckland rates. However, as pointed out by WIK, the underground soil classes (scoria) suggests lower costs and the claimed CBD trenching cost are significantly higher than seen in any other regulatory cost model.
163. Chorus and Analysys Mason have raised concerns relating to the model estimation of trench length. WIK note that it cannot verify the concern without further transparency of the model approach to geo-coding. If the Commission intends to consider this further, it should transparency of geo-coding in the model.

Aerial deployment

164. Chorus further submits that the TERA model does not account for the commercial and legal realities associated with aerial deployment. Chorus suggests that rather than the joint build model implicit to the TERA model, that it is more likely that an efficient operator would end up sharing with an existing lines company.³⁸
165. NWS note in the attached report that an efficient operator would share existing infrastructure, and that efficient operator could be an electricity lines company or seek to use existing infrastructure. We believe the key matter - around all submitters appear to agree - is that an efficient operator would share the pole network wherever possible. We do not believe it necessary, or relevant, to speculate on the nature of the efficient provider, i.e. whether it is a electricity line company or telecommunications provider. The key issue is determining what an efficient allocation of the cost should be. The Commission model implies an equal division of pole costs. Alternatively, WIK notes that we shouldn't assume that costs are shared equally between infrastructure providers, and that there are good reasons why lower share of the cost should be allocated to the telecommunications services to reflect relative standalone costs.³⁹ Conversely, NWS note in its report that a key LFC design consideration is to leverage existing assets and, on that basis, allocating only incremental costs to telecoms cable could better reflect efficient allocation of cost.⁴⁰
166. Chorus further submit, in referring to the incite report, that pessimistic resource management requirements should be assumed to apply to aerial deployment. NWS note that this doesn't appear to the case in practice – referring to an independent Ministry for the Environment report assessing consent requirements – and that the Government has recently released a draft

³⁸ Chorus submission, paragraph 477.

³⁹ WIK cross submission report, section 4.4.

⁴⁰ As reported in the NWS cross submission report, section 5.1.

National Environmental Standards for Telecommunications Facilities (NESTF) that will make aerial provision of telecoms cables a new permitted activity.⁴¹

167. Further, the Incite report refers to significant number of resource consents and certificates of compliance available to Chorus. Incite understands that Chorus has elected not to pursue consents in some areas given the amount of distribution already deployed understand and the number of available poles in the balance of the programme.⁴² In other words, the limitation for Chorus obtaining further consents is the economic trade-offs it faces rather than consenting concerns. Accordingly, this suggests that there is no reason to suggest that sufficiently motivated efficient operator would not be able to obtain resource approvals, particularly in light of the NESTF referred to above.
168. Finally, NWS notes significant limitations with Chorus' proposed design assumptions, unit and additional costs, and and recommends the Commission consider information from LFCs.
169. Chorus is asking the Commission to rely on its actual practice rather than what an efficient provider would do. Other LFCs demonstrate the cost effective nature of aerial deployment.

Network Sharing

170. Chorus and AM suggest that sharing should be limited and refer to its experience in practice. However, as noted above, this simply seeks to tie the model to Chorus' network and design rather than that we would expect to see from an efficient provider.
171. WIK notes in its previous submission that the model fails to reflect the degree of sharing it would expect to see by an efficient provider and reflected in a regulatory model. For example, the TERA model does not consider sharing of underground trenches with other utilities, limiting its consideration of sharing to aerial only.
172. While the Commission model has little consideration of infrastructure sharing, we know it occurs in practice and would be used extensively by an efficient provider undertaking a scale deployment. For example, there is already extensive infrastructure sharing undertaken by providers:
- a. Spark currently shares over 8,000km of trenches, ducts and cables with Chorus;
 - b. The typical sub-division practice is for the developer to provide and open trench, and utilities to share that trench. Local Authority rules and standards – for example NZ4404:2010 – encourage sharing of trenches;
 - c. Chorus and line companies extensively share poles;
 - d. LFCs extensively use line company poles for UFB deployment;
 - e. Spark and Vodafone share transport routes, ducts and cables.
173. The model fails to reflect the full nature and scope of sharing currently underway and available on a forward looking basis, and Chorus' proposed approach takes the model future leading to even less efficient prices.

⁴¹ NWS cross submission report, section 5.2

⁴² Incite February report, pages 6-8.

Opex

174. WIK note that Chorus, Analysys Mason and L1 Capital misstate the nature of the LFI adjustment. The LFI adjustment in the model simply reflects the relative difference between the opex associated with an old network relative to a new network. This adjustment is necessary to ensure the model remains internally consistent, i.e. with a replacement cost assumption. The L1 benchmarking of Chorus against BT demonstrates that the adjustment is not related to efficiency, but that fact that both operate aged networks.
175. Chorus and AM further suggest that there is a risk of double counting if the fibre adjustment is applied following the LFI adjustment. However, this second adjustment relates to the differing opex associated with a new copper versus a new fibre network. In this case, the TERA approach is methodologically correct.
176. As WIK point out in its earlier submission, the Commission starting point is already inflated as it does not fully reflect expected efficiencies. For example, the model appears to simply accept Chorus opex as the starting point without efficiency checks or regard to process design. The LFI adjustment reflects reduced fault volumes rather than any assessment of whether fault repair activities themselves are efficient. From WIK own benchmarking relating to fibre networks, suggests that the TERA estimate is appropriate.
177. The Chorus criticisms relating to the adjustment approach demonstrate the difficulty of the approach – i.e. being based on adjustments from an inefficient base - and supports the Commission adopting a mark-up approach.

WACC and annualisation

178. Chorus argues that there are asymmetric costs which imply an uplift is warranted and also propose a number of revised WACC parameters.⁴³ Chorus further argues that the Commission has materially departed from the approach it has taken in Part 4 regulated industries, and is therefore acting in an unpredictable way. This concern is misplaced.
179. While in principle the Commission may make an adjustment to the WACC estimate (up or down), it must be based on an objective justification. It is difficult to see the circumstances under which such an adjustment would be required:
- a. There would need to be a material over/under statement of the expected efficient price. The advice received by the Commission from its experts, and its ongoing consultation processes in respect of the FPP processes for UCLL and UBA, should minimise material uncertainties in the modelled prices⁴⁴. This means, as long as the Commission properly exercises its expert judgment in decision making, that it would be unlikely that there would be clear evidence of any material error in estimating WACC, or the TSLRIC price in the final determination for which an adjustment is required;
 - b. There would need to be clear evidence of such an error and nexus between any adjustment and consumer outcomes. A party to the proceedings would need to demonstrate objectively that the estimation includes significant parameter errors that, even though applied to a hypothetical forward looking capital value to compute the relevant tariff, have a direct nexus to the beneficial end user outcome. For example, any adjustment

⁴³ Chorus submission, paragraphs 621-687.

⁴⁴ Based on the submissions from parties, significant effort has been made by stakeholders and their expert advisors to evaluate the model developed by the Commission's expert advisor, and examine any sources of structural model error, parameter estimation error, or the conceptual basis of the Commission's UBA and UCLL models.

must, for example, demonstrably performance improvement rather than higher provider returns. High prices on their own do not necessarily deliver consumer outcomes; and

- c. The adjustment would demonstrably and quantifiably promote the long term benefit of end-users of telecommunication services in New Zealand.

180. Chorus and its advisors proposed approach, however, is based on general principles that fail to reflect the telecommunications regulatory framework and market we operate in, or demonstrate the nexus with end user interests or balance any benefits against the significant costs faced by consumers.

181. As set out in our submission of 20 February, while there are a range of structural model issues and parameter estimation issues to be considered before a final draft TSLRIC price for the relevant services can be considered, it unlikely that any material uplift to the draft determination pricing could be objectively justified as being in the long term best interest of end-users of these services.

182. We also address the core issues raised in the Chorus and CEG submissions address in our 12 September cross-submission on the proposed amendment to the WACC percentile in relation to energy services.⁴⁵ The Commission should also refer to that cross-submission. We have also asked WIK and NWS to consider Chorus and its advisors comments on these issues.

Uplift to WACC and overall price must be justifiable

183. As noted, we agree that in principle there may be scope for the selection of a WACC percentile above or below the mid-point of an appropriate distribution to minimise the asymmetric costs of estimation error. For the reasons discussed further below, it is unusual for an uplift to WACC to be necessary in a full TSLRIC model. In respect of WACC, the Commission's key task is to make the best possible estimate of the regulatory WACC which would represent the mid-point of an appropriate distribution.⁴⁶ Two important points must be taken into account,

- a. First, the differences between the IM processes and the TSLRIC FPP processes for UCLL and UBA, together with the differences in industry structure mean that different considerations must be used in determining any adjustments to a regulatory WACC estimate.⁴⁷
- b. Second, any adjustment should be based on and substantiated by the best available evidence of the quantum and probability of the impact of asymmetric risk, rather than speculation⁴⁸.

The IM approach

184. Chorus suggest that the Commission should have applied the IM approach to the WACC uplift rather than the approach taken in the Draft Determination. It argues the Commission has materially departed from the approach it has taken in Part 4 regulated industries, and is therefore acting in an unpredictable way. This concern is misplaced.

⁴⁵ Spark - *Proposed amendment to the WACC percentile for electricity lines services and gas pipeline services: response to Chorus submission*, 12 September 2014

⁴⁶ See paragraphs 228 in relation to the selection of an appropriate probability density function.

⁴⁷ See also Spark, 12 September cross-submission, paragraph 26-31.

⁴⁸ See also Spark, 12 September cross-submission, paragraph 46.

185. Spark believes that the Commission has correctly recognised that the characteristics of the NZ market and telecommunications means there is a different balancing exercise than that implied by Chorus.
186. The Act sets out a legal framework based on the long term benefit to end users, and the Commission should apply a consumer welfare test to analysing the relevance of any uplift to either WACC or the TSLRIC price. It appears to us that the Chorus analysis is based on a total welfare test, and takes no account of the impact of transfers between consumers and producers, or between producers in the supply chain between Chorus and end-users. We note that this issue is also considered in the IM processes.
- There is no evidence to support an adjustment*
187. Chorus has also expressed concern that the Commission's process associated with the estimation of model parameters may cause the WACC estimate to be systematically understated. Its submission proposes to address estimation error in setting the WACC through selection of a higher percentile than the mid-point WACC.
188. While we agree in principle that estimation error should be considered, there is no reliable evidence suggesting that the simplified Brennan-Lally CAPM model methodology as applied by the Commission gives rise to a systematic under- or over-statement of the regulatory WACC estimate. Spark sees no dependable evidence emerging from the Chorus or CEG submissions to support a decision by the Commission to select a higher percentile than the mid-point WACC based on any hypothetical distribution.
189. Chorus also propose replacement of the Commission's WACC model parameters with the effect of increasing the regulatory WACC, and then suggest that a higher percentile should be applied. Neither Chorus nor CEG provide compelling evidence to demonstrate that their alternative parameters do not suffer from estimation error, or systematically overstate the WACC estimate. Similarly, neither can show any evidence that the Commission has made incorrect parameter estimates.
190. Chorus also propose making a further uplift to the estimate of the TSLRIC price to address any residual asymmetric consequences of estimating the TSLRIC price too low that are not accounted for by addressing estimation error in the WACC and adopting the best evidence for other model parameters.
191. Again there is no evidence suggesting that the TSLRIC price estimates provided by the Analysys Mason model provide a demonstrably superior estimate of the TSLRIC price than those provided by the TERA model. There is certainly no evidence that there is any need for an uplift to the TSLRIC price after applying an uplift to the regulatory WACC estimate in order to address any "residual asymmetric risk". These models are based on markedly different core assumptions and comparison of the headline outputs is largely meaningless. We also cannot be satisfied that the Analysys Mason model does not suffer from structural model errors, or parameter errors, due to the limited time and resources available to evaluate it. We support the Commission in its effort to adopt the best available evidence for model parameters, and the consultation process it undertakes to test its proposed approach.
192. In the absence of compelling evidence that the proposed TSLRIC price for the two services is set too low, whether as a result of estimation error in the WACC estimate, or in other aspects of the model structure or parameters used to compute the TSLRIC prices, we cannot support Chorus' suggestion that an uplift is necessary.

The long term best interest of end-users requires consideration of market circumstances

193. Spark agrees in principle that the risk of setting an inefficiently low price using a TSLRIC model, although unlikely, can conceivably give rise to price levels which fail to provide regulatory signals that will incentivise and enable ongoing investment and innovation. That said, we note that the market structure and external factors can dampen these effects (in this case, the committed investment required by the Government's UFB and RBI schemes). We draw the Commission's attention to the fact that the risk of setting an inefficiently low price is the greatest in the early phases of opening up a vertically integrated incumbent network to competition. Here too the regulator's task is easier since the issues to be considered in relation to access pricing are simpler, and *ex post* competition law provides a constraint retail pricing by the incumbent.
194. The value of stimulating competition in this phase of regulation for the long benefit of end users requires a clear focus on maintaining investment incentives for the incumbent and for new entrants. This is because incumbent retail pricing for the relevant services typically exceeds the optimal efficient retail price. Access price setting can therefore be higher than the optimal efficient access price, and still enable the efficient entry of competitors. A failure to invest in the non-replicated elements of the incumbent's infrastructure will provide the sort of detrimental outcomes for end-users described in Professor Hausman's paper⁴⁹ and elsewhere in the literature. The harm from setting an inefficiently low access price during this phase of regulation is to limit or remove the incentives for the access provider in respect of investment or innovation.
195. In New Zealand, the telecommunications industry is no longer in this phase of regulation. Instead, the industry under regulation has entered into a "middle" stage of opening up the vertically integrated incumbent network to competition. Telecom, as the incumbent has been structurally separated into Chorus and Spark, Chorus as the network access provider retains its monopoly on copper access technologies, and is, or shortly will become a fibre access provider with a substantial degree of market power in many if not all areas of New Zealand. In addition, a vertically integrated entrant has been created by merger, commercially viable unbundling has taken place, and workable competition exists amongst retail service providers. In contrast to the "initial" stage of regulating the fixed access network, the risk of setting an inefficiently low price for the access provider given the current New Zealand market structure is no longer the only material risk to be taken into account.

Structural separation and workable retail competition requires competitive market proxy wholesale pricing

196. In our 20 February submission, we drew the Commission's attention to the other relevant principle – the risk of setting an inefficiently high price, and the danger that this may give rise to price levels which provide an excess reward to the Chorus as the access provider, create a margin squeeze for retail service providers as access seekers and fail to provide regulatory signals that will incentivise and enable ongoing investment and innovation at both levels of the market.
197. In paragraph 279 of the Chorus submission, it further notes that, in the long run, providing compensation to a regulated business that is less than its expected average costs is likely to have negative welfare consequences from the consequent underinvestment. A consequence of setting the best proxy for the competitive price for a regulated service is that the profitability of the investment as a return on and of the capital employed is assumed, but limited to that. In contrast, under workable competition, profitability of an unregulated firm is checked and the return on and of the capital employed may deviate upward or downward.

⁴⁹ Professor Hausman, Response to the Commerce Commission's Draft Determination on Uplift, Report.

198. Professor Hausman suggests in paragraph 52 of his expert report that there is no reason to take into account the protection of access seekers' investment. He suggests that this is because investment by access seekers will not lead to quality improvement for consumers. However, this fails to reflect that quality improvements for end user benefits require associated investment by access seekers, the Commission must consider incentives for access seeker investment or innovation.
199. Professor Hausman has not fully taken into account the dynamics created as a result of structural separation in New Zealand, and the other market changes set out above. While he will be familiar with the 1980's history of the separation of AT&T from the RBOCs and the subsequent partial reversal through merger and acquisition, the differences in market structure and the dynamics created in the United States telecommunications markets between that example and the New Zealand situation are significant. Spark believes that the overriding requirement to consider the LTBEU means that given the existing market structure, the Commission must not overlook the creation of incentives for investment and innovation for both Chorus and RSPs.
200. Further, the committed nature of Chorus' investment in FTTH and FTTN leaves access seeker investment as the key investment to be "solved for" in the New Zealand environment.
201. The Commission's decision in relation to UCLL and UBA pricing affects the business decisions of both Chorus and RSPs. Setting a regulated price which exceeds the competitive price at wholesale, in the presence of workable competition by RSPs, will in the long run be passed through to end-users to some extent, and absorbed by the retail service provider to some extent, resulting in higher prices, and reduced investment and innovation at the retail level.
202. The corollary to this is that regulatory outcomes which assist to create investment incentives at both tiers of the market once competition is established will lead to significant gains in economic welfare. The Commission's task under the legislation is to set the FPP price based on its best estimate of the TSLRIC price as a proxy for a competitive price in order to correctly compensate Chorus, for its actual expected average costs, and to incentivise investment and innovation in relation to and using the regulated services by both Chorus and RSPs
203. These are the only outcomes which are in the long term best interests of end-users consistent with the overriding purpose statement contained in section 18 of the Act.

Application of IM principles to telecommunications

204. Chorus argues that the Commission has materially departed from the approach it has taken in Part 4 regulated industries, and is therefore acting in an unpredictable way. Despite this Chorus apparently accepts elsewhere that the Commission should depart from the IM approach where that is more appropriate to the requirements of the TSLRIC FPP process. For example, Chorus and CEG argue the Commission should take a different approach to determining asset beta.
205. The IM approach is based on considerations of consumer welfare, and evidence based assessment of the link to quality improvement for end user benefits. It recognised the need to balance the implications of increasing prices, balancing these against any benefits of an uplift for performance improvement. The Commission can apply these underlying IM principles to the different market structure and regulatory schema of the telecommunications industry, and doing this would satisfy any requirement of predictability. It is not unexpected that, when applying the general economic principles to a different factual situation, that the Commission will reach a different answer.
206. It is not unexpected that, when applying the principles underlying the IM approach, the Commission gets a different answer in relation to telecommunications. The rationale for providing an uplift to WACC in the Part 4 context is that the regulatory WACC is applied to the value of

investment that is actually made by a regulated supplier. An uplift to WACC therefore can provide a direct way of addressing any asymmetric costs to consumers - if a supplier makes a particular investment, a WACC above the mid-point estimate can provide that supplier with greater confidence that it is likely to earn a normal return on that investment.

207. This rationale cannot apply in the TSLRIC FPP process, since this link does not exist where the regulatory WACC is applied to an entirely hypothetical current and projected capital value to determine the price that Chorus can charge for its service going forward. CEG effectively recognises this point when they note that (para 18):

"[In the Part 4 context] the regulatory WACC sends an immediate signal about the value of incremental investments to regulated businesses through the addition of capital expenditure to the regulated asset base. In the context of uncertainty in the WACC and the asymmetric consequences of investment in electricity and gas networks, allowing for an uplift to the WACC provides a direct way of ensuring that the expected costs of under- or overinvestment are minimised."

208. In other words, an uplift to WACC does not have a direct impact on the likelihood of appropriate investment being undertaken by Chorus in the future. If an uplift is warranted, it can only be by way of uplift to the overall price - which must be objectively shown to be necessary to promote the long-term benefit of end-users.

209. In a workably competitive retail market it could be expected that a significant proportion of any excess above the competitive wholesale price would be passed through to end users, while the balance would be absorbed by retail service providers with a limiting effect on their incentives for investment and innovation. In other words, Chorus would have to show the Commission that there are highly likely to be material tangible benefits in the long-term (in terms of efficient investment and innovation that meets current and future consumers' demand at the quality that they want) that will outweigh the cost of paying a higher price over that time.

210. Chorus and its experts have not demonstrated that the draft determination price is incorrect, or how or why setting a higher price will lead to increased investment, and how that will be to the long-term benefit of end-users. Three particular aspects of their argument deserve comment.

211. First, Chorus argues that "regulatory approaches which assist to create investment incentives to provide internet and decrease outages will lead to significant gains in economic welfare".⁵⁰ Spark agrees that this assertion might possibly be true as a broad statement - but it is by no means clear that an uplift to the price for UCLL and UBA will create these incentives, nor that the gains in welfare outweigh the detriments caused by the increase in price.

212. The second aspect to Chorus' position raises additional concerns. In the context of a TSLRIC FPP price which anticipates a level of further investment compensated based on optimised replacement cost rather than a building blocks rate of return model, there can be no certainty that setting a higher price will of itself create a higher likelihood of appropriate and efficient investment going forward. Chorus is not required to invest in order to benefit from those higher prices once the regulatory decision is finalised. Equally, Chorus is not explicitly required or otherwise incentivised to ensure that any investment which takes place is efficient and in the long-term benefit of consumers.

213. Thirdly, CEG suggests⁵¹ that Chorus does not have an incentive to over-invest

214. This is a necessary consequence of a TSLRIC model under which profitability of the forward looking expected level of investment at the regulated estimate of WACC is likely to be assured.

⁵⁰ Chorus submission para 661

⁵¹ CEG, Competition Economists Group, Uplift asymmetries in the TSLRIC price CEG Expert report para 31

The "natural incentive" for Chorus is to only invest in ways that are likely to lead to a significant uplift in demand, and/or going to ensure it meets any regulated quality standards. This true whether the price is "too low" or "too high".

215. Accordingly, the rate-of-return regulation link between over-compensating on WACC and additional investment does not exist in the TSLRIC model estimate.

Estimation of regulatory WACC is interdependent with TSLRIC model assumptions

216. The Commission's approach to the selection of parameters to estimate an appropriate WACC or any uplift adjustments must not be, and cannot, be treated as independent of the forward looking long run cost based approach to determining the asset base required under the Act's definition of TSLRIC.

217. TSLRIC seeks to achieve the efficient price signals to both the access seeker and the access provider through the TSLRIC model price rather than through adjusting the WACC in a rate-of-return model. The regulated firm does not receive additional revenue through additional, or less, investment. Instead it receives compensation in the TSLRIC price for the optimised replacement cost of the estimated level of investment, providing incentives to invest and innovate rather than through a WACC adjustment.

Can adjustments to WACC or the TSLRIC price be justified?

218. Spark does not believe that in the context of the TSLRIC FPP, the Commission has the discretion to apply an adjustment to the estimated WACC or the TSLRIC price unless there is clear and objective evidence of parameter estimation error which cannot otherwise be remedied. The Commission must use its best judgment through the statutory process, in the long term best interest of end users to estimate the cost to provide the service.

219. Chorus suggest that the purpose of an adjustment to WACC is to derive a return that overstates cost so as to compensate for risk. In the context of determining an IPP price, where estimation error in benchmarking can be expected, an adjustment leading to a higher price might be defensible. This could only be justified where the magnitude of that estimation error and its impact on incentives can be objectively determined.

220. In the context of a TSLRIC FPP process the situation is different, a decision to make a WACC adjustment would in fact be an explicit decision to over-state the costs of the service. This option is simply not available to the Commission. The Act requires the Commission to make its best estimate of the TSLRIC⁵² cost to provide the service and this must be the midpoint of an appropriate probability distribution.

221. Chorus and its expert advisors submit extensively on the need for an uplift to the TSLRIC price. Their justification for this is that it is necessary to cover the forward-looking costs of continual investment in, and replacement of the network.⁵³ As noted above, this would likely lead to double counting since the TSLRIC model contains an estimate of the forward looking long run optimised replacement cost for a functionally equivalent MEA. We are unclear what further investment might be required incremental to the proposed MEA network.

222. Even assuming that further actual ongoing investment was required to the existing network which was not compensated for by the TSLRIC price, there are no consequences to Chorus if that hypothetical continual investment does not occur. Any such uncompensated continual investment

⁵² As that term is defined in the Act

⁵³ e.g. Chorus February 20 Submission at paragraph 626.

would be very unlikely to be in the long-term interests of consumers anyway - given that it will be to upgrade/maintain a legacy network that is being replaced.

223. Further, investment and innovation in quality improvements is taking place outside the scope of the STD regulated UCLL and UBA services at historic prices. In terms of quality improvement, these investments are occurring outside the regulated services:
- a. The first of these is the UFB deployment by Chorus, which is priced separately to the UCLL and UBA STDs. Therefore, the assessment and assumption of contractual allocations of risk, and investment incentives arise from the PPP between CHF/Chorus through Government subsidies in RBI and UFB, separately derived prices and a separate business case.
 - b. Second, the UFB deployment by other LFCs is taking place separately based on the investment incentives arising from the PPP between CHF and other LFCs based on Government subsidies in UFB, their individual business cases and the assessment and assumption of contractual allocations of risk;
 - c. Through the RBI subsidy; and
 - d. As noted above, by access seekers.

224. We reiterate that Chorus provides regulated input to the value adding activities of RSPs and the benefits accruing to end users through those. Investment, quality improvement and innovation is also required and delivered to end-users at the RSP level. As noted above, a regulated price which exceeds the best TSLRIC estimate of a competitive market price will have a detrimental impact on consumer surplus. It will also impact the ability of RSPs to invest further, and at optimal times in quality and innovation.

225. Alternatively, if Chorus is suggesting that the UBA and UCLL price should be higher to provide a revenue stream to increase its investment in fibre, that is not an appropriate use of the Commission's power under section 18. Incentives for Chorus to invest in building the fibre network are provided for elsewhere.

Asymmetric risk - influence on market-wide investment incentives

226. Chorus assert that the estimate of regulatory WACC should be set at a level which provides the financial return that investors would require given the risk of investment in the regulated services.

227. In our 12 September cross-submission on the proposed amendment to the WACC percentile in relation to energy services, we responded to a range of assertions raised in that process by Chorus on asymmetry and the issues related to an uplift to WACC. Spark continues to hold the views expressed in that cross-submission. In particular we addressed in detail the elements of risk which are compensated for in WACC parameters, and under regulation.

228. As we noted in our 12 September cross-submission, the CAPM approach to estimating WACC used by the Commission reflects the fact that it is only systematic risk which is compensated for by capital markets in a competitive market. As we described there, a regulated firm has some level of buffering of risk, at the cost of reduced flexibility in its ability to adjust to fluctuations. Importantly, though the CAPM approach models and compensates for symmetrically distributed systematic risk. This raises two problems:

- a. First, regulation will to some extent introduce asymmetry in the distribution of cashflows from the regulated service for a partially regulated firm such as Chorus.

- b. Second, the CAPM approach uses the simplifying assumption of a symmetrical distribution. As a range of experts have explained to the Commission in the past, asymmetric risk arises since the estimate of WACC is used to set a tariff cap which exposes the regulated firm to a limited upward deviation in the realised rate of return 50% of the time. The CAPM simplifying assumption implies that the regulated firm is then exposed to an unlimited downward deviation in the realised rate of return with a 50% probability. We think this theoretical outcome should be applied to the price setting process with extreme caution.

229. As noted in our 12 September cross-submission⁵⁴, it should not be assumed by the Commission that the actual cash flow distribution of a regulated firm supplying UCLL and UBA services will be symmetric around the influence on a regulated price from a given estimate of WACC⁵⁵. There is some empirical evidence to suggest that in fact actual cash flow distributions are more likely to be asymmetric with a fat tail to the right⁵⁶. In other words, the regulated firm is likely to be exposed to a limited upward deviation in the realised rate of return more of the time than it is exposed to an unlimited downward deviation.

230. This would suggest that any upward adjustment to the estimate of WACC based on applying the CAPM assumption of a normal distribution is likely to over-compensate the regulated firm, and provide an estimate of the regulated price which is above the optimal estimate of the competitive price. It follows then, as the High Court suggested in connection with the IM merits review process, that any adjustment to the WACC will not necessarily be an appropriate compensation for asymmetric cash flow risk of the regulated firm in the absence of supporting analysis. To the extent that it results in a regulated price which is above the optimal estimate of the competitive price, it will impact on market-wide incentives for investment and innovation to the detriment of the LTBEU.

TSLRIC prices are likely to provide more than Chorus' actual expected long run average costs

231. It is not credible for both Chorus and CEG⁵⁷ to suggest the draft price is insufficient to cover Chorus' expected average costs, and that it will not invest on that basis. They argue that, in the long run, providing compensation to a regulated business that is less than its expected average costs is likely to have negative welfare consequences from the consequent underinvestment. In fact, the TSLRIC pricing methodology (including forward looking long run views of demand, asset base and WACC) provides an economic return based on a fully funded fibre network without adjustment for the additional capabilities that network offers.

232. The return implicit in the Draft Determination is based on a modelled asset base value demonstrably in excess of the depreciated historic cost of the assets used to provide the UCLL and UBA regulated services. In the context of the current transition to UFB, it is difficult to see how the actual expected average cost to Chorus of its UCLL and UBA services over the long-run could be greater than the draft price.

233. In fact, as set out in our 20 February submission, all the options before the Commission provide a revenue stream to Chorus which exceeds the costs required for Chorus to maintain

⁵⁴ 12 September Spark Cross-submission at paragraph 25

⁵⁵ The same point applies to model estimation error or parameter error in relation to any other element of the TSLRIC price setting process.

⁵⁶ E.g, LeBaron, Blake. "Robust Properties of Stock Return Tails." (2008); Gabaix, Xavier. *Power laws in economics and finance*. No. w14299. National Bureau of Economic Research, 2008; Lux, Thomas. "Financial Power Laws: Empirical evidence, Models, and Mechanism (2004).

⁵⁷ Chorus para 279 and CEG CEG, Competition Economists Group, Uplift asymmetries in the TSLRIC price.

the copper network in the face of limited growth in demand. As Professor Vogelsang has advised the Commission⁵⁸, the draft price is likely to be considerably more than necessary for Chorus to operate and maintain its copper network over the remaining lifetime of that network.

Chorus evidence does not show further material investment in UCLL

234. For example, the evidence is that Chorus is not investing materially in UCLL supporting infrastructure despite receiving a past return based on TSLRIC benchmarking which exceeds even the proposed regulated price for the service. It has minimised investment in copper and, with full cost recovery suppressing demand, reports investing only \$28m in the copper network for the first half of FY 2015⁵⁹:

Copper related capital expenditure reduced to a total of \$28 million as the expansion of the UFB network footprint saw demand for copper connections reduce and cash management initiatives, such as full cost recovery, further constrained end-user demand. Chorus also continued to restrict its discretionary investment in expanding copper network capability and coverage, as well as proactive maintenance programmes, as a consequence of the ongoing regulatory uncertainty.

235. Chorus' forward looking capital allocation choices, and the investment incentives for Chorus' funders will be dependent on their respective assessments of the business case(s) surrounding further investment in the assets supplying the UCLL and UBA services, and other available investment choices. Realistic investor expectations would be that Chorus receive a competitive market return on its sunk assets looking forward over time, and in relation to regulated services, on those assets over the regulatory period. Anything more than that is likely to embed monopoly rents – an expectation unrealistic for a regulated service in the New Zealand, and one which represents a transfer from end users of telecommunication services to investors.

No additional compensation required for catastrophic risk or stranding of the hypothetical assets of the HEO

236. Chorus have also argued that an uplift to the regulatory WACC estimate and to the TSLRIC price is justified in order to deal with a range of other asymmetric risks. We comment on two particular aspects of these. In both cases, we do not think there is any evidence that those risks require any compensation additional to the TSLRIC FPP price.
- a. Chorus argue that compensation for catastrophic risk is required. As described above, we think that Chorus is setting a TSLRIC FPP price providing returns to Chorus based on the forward looking cost of building an MEA network today which delivers functionality greater than the existing copper fixed access network. We believe that this risk is inherently being compensated for by the future regulated cashflows. Accordingly we see no room for additional compensation.
 - b. Chorus also argue that it requires compensation for asset stranding based on the concern that the HEO's assumed investment will be stranded on the first review by the Commission. First we note that the TSLRIC FPP price includes compensation for actual asset stranding – that is, where the asset can no longer earn sufficient revenues to fund the original investment. The TSLRIC FPP process is means to compute the forward looking costs of supplying the regulated services as a proxy for the competitive market price which those services should command. There is no assumed investment which will be stranded. Chorus' actual investment has been, or to the extent relevant can reasonably be expected

⁵⁸ Vogelsang, *ibid*.

⁵⁹ Chorus Half year report 2014/2015, page 5

to be recovered from the TSLRIC FPP price. Accordingly we see no scope for additional compensation.

Chorus assertions in relation to demand

237. We think Chorus is incorrect in asserting that the Commission is improperly reflecting Chorus demand and that accordingly the TSLRIC FPP price derived from the Commission estimate of demand over the regulatory period will result in an under-recovery of costs. The Commission's approach to estimating demand will not result in an underrecovery of costs for Chorus for the reasons set out above. We think the Commission's approach to demand estimates, subject to the concerns set out in our 20 February submission, and the attached expert reports, would be a more accurate estimate of demand for use in the model.

238. In the first instance, we note that the Commission's expert advisor, Professor Vogelsang has advised the Commission^[1] that the TSLRIC FPP prices set out in the Draft Determination provide a return which is likely to be considerably more than necessary for Chorus to operate and maintain its copper network over the remaining lifetime of that network.

239. Turning to specific assertions, Chorus state in paragraph 297 of their submission that demand for the HEO should exclude the LFC areas. They assert that the inclusion of these areas delivers greater economies of scale than can be realised by Chorus. The STDs relating to the UCLL and UBA services are national in coverage and do not have any exclusions for the LFC areas. As discussed above, the TSLRIC methodology produces a forward looking cost based proxy for the competitive market price for the regulated services using a functionally equivalent MEA. Chorus' copper network currently extends across the LFC areas. There is no reason for the Commission's estimate of demand to exclude the LFC areas.

240. We have asked NWS and WIK to consider more fully Chorus's submissions in relation to demand. We endorse their comments set out in paragraph 7.1 of NWS expert report, and in paragraph 3.2 of WIK's expert report, both of which are appended to this cross-submission..

WACC parameters

241. Spark has asked NWS to consider and advise on the proposals advanced by Chorus and CEG in relation to the Commission's draft determination in relation to WACC parameters. Their expert report is appended to this submission. We comment further below on the analysis of asset beta, and support their findings on the position put forward by Chorus and its advisor.

Chorus and CEG views on asset beta

242. Chorus and CEG urge the Commission to adopt an asset beta of 0.50 in place of the Draft Determination value of 0.40. They submit that the most accurate available evidence of average asset beta for relevant firms should be drawn from the past 20 years, rather than the five year period recommended by Oxera. This appears from the language used by CEG to be based on the assumption that beta for an individual firm is mean-reverting in the long run and that this estimate is preferable to remove the influence of short-run volatility. We disagree with their reasoning, and support the Commission's draft decision in relation to the Oxera estimate, subject to our comments in paragraphs 388 of our 20 February submission.

243. While there is some empirical evidence to support this proposition, the process of mean reversion in financial markets evidences asymmetries and is not deterministic. In addition the CAPM model and its variants contain simplifying assumptions which are not necessarily fully

^[1] Vogelsang, *ibid*

transferrable to the behaviour of beta when using WACC to estimate the tariff for a regulated service.

244. For Chorus' claim to be true, the key assumption behind the notion of long run mean reversion would have to be that the systematic risk of a copper-based UCLL and UBA access provider in comparison to the market as a whole remains materially constant over time. This would require that there are no significant underlying changes in industry structure, dominant technologies, regulatory approaches, or other relevant risk factors which affect the systematic risk faced by that segment of the telecommunications industry.
245. Spark does not believe this assumption to be sustainable, for the reasons set out above and in the context of an ongoing Government subsidised FTTH build. In our view the Commission should not feel bound to follow slavishly the methodology used in the IMs when estimating asset beta in the TSLRIC based FPP process. We agree with NWS' analysis of the relevance of the Input Methodologies precedent.⁶⁰
246. CEG have also carried out a comparison of international WACC asset betas for fixed access telecommunications networks across a range of jurisdictions, and claims that these support their long term estimate. We asked NWS to examine their comparison. NWS, in section 3.1 of their report conclude that there are comparability issues with the data. They carried out a detailed review of the methodology used in a subset of the regulators in the CEG sample as set out in their report. Based on their analysis and conclusions, we see no evidence to support CEG's assertion.
247. We note CEG's comments in relation to Oxera's⁶¹ advice to the Commission that telecommunications asset betas have been declining. The apparent correlation raised by CEG of lower European telecommunications company betas being associated with higher European financial company betas tells us nothing whatsoever about causation. If betas for telecommunications companies are now lower due to, for example, changes in telecommunications industry structure, then on average the betas for other sectors, including financial companies, must be somewhat higher - as by definition the market average equity beta remains the same. The CEG analysis is insufficient to be able to reach a conclusion that the more recent (European) telecommunications company beta data should be rejected or down-weighted due to the European sovereign debt crisis.
248. In their expert report, NWS set out a brief summary of significant changes relevant to the beta estimate which have affected the international telecommunications industry in the past twenty years. We agree with the issues raised in their expert report.

Backdating

249. Chorus argues that backdating is mandated by the Act. It argues that it has already constrained its business operations and investments as a consequence of benchmarked IPP pricing, as well as suspending dividend payments to shareholders. It makes a compelling case for why backdating will benefit its shareholders.
250. What Chorus does not do, however, is show any evidence that:
- a. The IPP prices would not permit it to achieve a normal return on its original investment in its copper network assets; or

⁶⁰ Network Strategies (2015), *Cross-submission for the UCLL and UBA Draft Determination*, 20 March 2015. Section 3.1 Page 24

⁶¹ Paragraph 390 of our 20 February submission, and Oxera (4 November 2014) at page 7

- b. The backdating of FPP prices will affect its future investment decisions in such a way as to reverse the effect if any of the IPP prices on its investment programme; or
- c. The backdating of FPP prices would deliver any demonstrable benefits to end-users.

251. Further, Chorus argues strongly that any backdating of the UCLL price should extend to December 2012, on the basis that it has received a less than efficient price for the UCLL service during that entire time. In making this argument, Chorus attempts to isolate the effects of the contemporaneous reviews of, and changes in, the UCLL and UBA prices. The reality is that these two services are inherently linked – UBA is provided in conjunction with UCLL in all cases, and on the large majority of lines.

252. As a network operator, Chorus cannot and does not treat the revenue streams, or investment incentives, implied by each price, separately. Instead, it responds to overall revenue streams from the network in question – the copper local access network. As the Commission has noted, the UBA price was frozen at retail minus levels for a three year period which ended on 1 December 2014. The resulting combined revenue stream from UBA and UCLL, again, leaves no argument from Chorus that it has recovered a less-than-efficient sum from its network services during this period.

Chorus has received an above-normal return on its original investments at all times

253. Whereas it may be argued that an FPP price may be a more efficient estimate of the long-run price that a competitive market would achieve, if the only impact of this is a small reduction in the still above-normal return Chorus achieves, then it is difficult to see how efficiency has been reduced in any way that requires retrospective correction.

254. The Commission's own advisor Ingo Vogelsang has confirmed that TSLRIC pricing will without question enable Chorus to receive a return greater than that required for it to continue investing in its existing assets. WIK confirms that this over-recovery is significant – so significant in fact, that it will unquestionably still be achieving an above-normal return on its actual investments during any period for which the IPP prices exist.

255. This means there can be no concern that Chorus will either:

- a. Achieve less than a normal return on its actual investments; or
- b. Face reduced incentives to continue to invest in its existing network.

256. The technical incentives that remain to invest in the network – to optimise between reactive fault repair costs versus pro-active replacement of the network – are unchanged by regulated prices.

257. This only leaves a potential concern about Chorus' future incentives to invest in replacement infrastructure.

258. Firstly, if there is no under-recovery, a decision not to backdate cannot be seen as regulatory opportunism with associated impact on future investment.

259. Secondly, given that: (a) the bulk of this replacement has already been committed; (b) the recently confirmed continuation of the UFB and RBI schemes reduces significantly any incentive on Chorus to invest in future replacement infrastructure itself; and (c) the combination of UFB1, RBI1, UFB 2 and RBI2 will consume all of the available build resources for the foreseeable future, we do not see any credible case to be made that any short period of IPP prices will materially affect Chorus' future investment incentives in a way that is inefficient.

260. In this respect, we note also the academic literature referred to by the Commission in its EDB and GPB IM Reasons Paper on the question of long-run equilibrium in workably competitive markets, and specifically, to the following passage from that decision, which includes a quote from J.M.Clark:⁶²

“in workably competitive markets, “tendencies towards equilibrium...never reach their static limits”. So in workably competitive markets, long-run equilibrium is unlikely to be reached, shortages and surpluses continuously arise and outcomes constantly evolve. Asset values in particular vary in light of changing expectations about the future, not simply in light of changes in replacement costs today.”

Future investment decision will be made on their own merit, without reference to any backdating

261. As we have set out above, there is no argument that the IPP prices can affect Chorus' investment incentives in respect of its existing assets. Similarly, Chorus has not shown any evidence to suggest that the application of IPP prices for an interim period of time will affect its future investment incentives – its incentive to invest in replacement infrastructure for its current network – in any material way.

262. That's because investment incentives going forward will be, and can only be, taken care of by setting the "right" price to apply in the future. Put bluntly, the UCLL price that applies between 1 December 2014 and 30 September 2015 will have nothing whatsoever to do with how Chorus assesses business cases for replacement investment in December 2015, in December 2016 or in December 2020. Those investment decisions will be made on their own merits, as the High Court recently confirmed:⁶³

*The idea that greater revenues produced by higher allowed earnings on past investment (ie on the initial RAB) provide the wherewithal for more future investment is contrary to rational investment choice. Those existing higher earnings, once earned, are a given. **The source of funds for future investments does not influence the riskiness of future investment; nor, therefore, does it influence their attractiveness.** (emphasis added)*

263. Put another way, Chorus has stated that its investment decisions and business operations have already been constrained by the IPP pricing decisions. For backdating to be justified in this context, Chorus would need to show that both:

- a. It has already under-invested in UBA and UCLL in a way that will be detrimental to consumers going forward (i.e. by pointing to particular investment decisions that were planned and not made, and providing evidence about the likely effect of those investments on end-users in the future);
- b. That its decision not to proceed with those investments was a rational decision, influenced principally by the proposed IPP prices (and not, for example, a result instead of Chorus' gearing or its public positioning); and
- c. Backdating would now mean that Chorus will remedy the effects of those decisions, i.e. that it will now make the investments that it would have/should have done in the past, and that making those investments now will be to the long-term benefit of end-users.

⁶² Commerce Commission EDB and GPB Input Methodologies Reasons Paper, December 2010, para 4.3.60.

⁶³ Wellington International Airport and others v Commerce Commission [2013] NZHC 3289, paragraph 1480.

264. In practice, there is no evidence to suggest IPP prices should have made any difference to Chorus investment in regulated services:
- a. Chorus has already entered in to commercial arrangements that result in minimal investment in the copper network in any case. It is already obliged by virtue of the UFB arrangements to minimise investment in the copper network and had taken significant steps prior to IPP prices being finalised to minimise the investment in the copper network. As an illustration of this, Chorus plans to invest less than \$70m in the copper network over the 2015 year;⁶⁴
 - b. There is no link between regulated service prices and Chorus obligations to maintain service performance. This means that Chorus maximises its value by, irrespective of regulated service prices, minimising investment in the copper network; and
 - c. The Government RBI framework means that any investment to upgrade the rural network is funded through RBI grants. Chorus would undermine future RBI grants by pro-actively investing in the rural network.

Facing uncertain final prices, backdating provides no useful precedent value

265. Chorus argues that, if the Commission backdates and sets an expectation that this will always be the case, it creates the right incentives for future decisions.
266. It is difficult to see how the expectation and practice of backdating could be likely to create additional certainty, investment incentives and price signals going forward. That is because the Commission cannot legally commit to always backdate, or always not backdate, as it needs to decide on the facts of the particular decision.
267. Further, even if the Commission could commit to a backdating policy, this would still not address the underlying issue that creates any investment uncertainty in the first place - the risk of price change from the IPP (or draft) to the FPP.

RSPs can't be expected to act on uncertain prices

268. Chorus has the wrong focus when it says that RSPs should have known this decision was coming and should have been prepared for the decision to be backdated. Chorus' submission suggests there was only one possible, easily identifiable outcome of the FPP process, which the market and all parties involved should have been aware of and able to prepare for. That's clearly not the case - the length and complexity of the consultation process alone demonstrates that there were a multitude of possible outcomes in terms of the final FPP price.
269. Chorus itself has, over time, argued that the UBA price could plausibly sit in the range of around \$10 (as proposed in the draft decision) through to \$27 per month yet continued to predict a "total" UCLL+UBA price of approximately \$45 for the large majority of this same period – implying varying UCLL valuations of between \$18 and \$35.
270. Further, contrary to Chorus' claims, the parties and Commission should be cautious forming views of regulatory costs and outcomes on the basis of Analyst reports. Analysts are subject to a wide range of influences and are not regulatory authorities with access to information and processes that enable them to assess efficient costs. For example, Chorus refers to a number of Analysts' reports from the November 2013 to February 2014 period which anticipate higher

⁶⁴ Chorus Half Year presentation 2014/2015, \$60-\$75m, page 24.

regulated prices. However, it wasn't until December 2013 that the Commission released the first process and issues paper.

271. At that time, the only prices available to the market were IPP prices that were the product of an exhaustive benchmarking process. Accordingly, for RSPs to adopt the analyst positions as accurate reflection of FPP outcomes, they would have to believe that the Commission would backfill the FPP to reflect analyst reported outcomes. This is clearly untenable.

272. Ultimately, the draft prices also surprised the market. Prices steadily increased following the Chorus May 2014 investor day, but even then the market was surprised by the size of the proposed increase as shown by the 30% increase in Chorus share prices following the draft.

Figure 7: Chorus share price pre and post draft decision



273. The only reliable information RSPs had to act on was the outcome of the IPP process, and it could not be reasonably expected that they anticipate the draft prices as Chorus suggest. It is still not clear what the final FPP prices will be. As set out in submissions, there are significant inefficiencies built in the draft cost model and if these are remedies we are likely to see final prices at or below IPP prices.

274. Therefore, faced with this uncertainty, all parties will ultimately take a conservative approach. It is this uncertainty that parties are acting on and it won't be resolved by a commitment to backdate or otherwise.

A decision not to backdate is the only realistic means to resolve transition uncertainty

275. Nonetheless, if the Commission concluded that a commitment to backdate would create the right incentives for future processes, then the only way to do this is to set an interim price that is certain. The uncertainty relating to the final FPP price means that the commitment would not be effective – all parties would still need to take a conservative position. Therefore, to get the benefit the Commission would need to implement a price for the transition period that was certain, and the only one available to the commission is the IPP price. If the future incentives is seen as important, then it should commit to not backdate as this means price certainty over the interim period

276. Ultimately, Chorus' proposal to set future expectations is a distraction - what Chorus (and the Commission) needs to show is that backdating is for the long-term benefit of end-users.

The Commission must quantify the impact on end users

277. Given all of the above, it is difficult to see any case for “compensation” to be made to Chorus by way of backdating. There is no “unfairness” to correct for.
278. But even if there were, the Commission, and Chorus, would need to show that this best promoted s18. There would need to be evidence that this backdated payment would generate more benefit (efficiencies) *for end-users* than the alternative option of not backdating.
279. Chorus does not face workable competition. There is no prospect of competitive intensity forcing flow-through of any backdated payments downstream to end-users.
280. Chorus’ investment incentives in respect of maintaining its existing network are unaffected by a backdating decision, because even without backdating it will at all times earn more than a normal return on its existing assets. Its investment incentives in respect of replacing its existing network are unaffected for the same reason and for the inescapable reality that decisions to invest in the future must be made on their own merits without reference to past endowments (and finally, are already largely committed through UFB and RBI).
281. So what benefits, what efficiencies, can end-users expect to see? Because investment incentives and efficiencies and all of the other s18 objectives are only there for the benefit of end-users.
282. Without someone identifying what this benefits are, and comparing them to the benefits apparent if a decision not to backdate are made, the purposes of the Act cannot be met by a decision to backdate.
283. In the event that a decision is made not to backdate, Spark has committed to 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. That is a direct benefit to end-users.

There is no precedent to mandate backdating

284. Chorus’ claims that there is superior court precedent requiring that a FPP price review determination be backdated to the commencement of the regulatory period from which the IPP determination took effect. But, as we have previously pointed out, and consistent with the legal opinion of Dr Every-Palmer, that decision does not constitute a binding precedent for this PRD for a standard terms determination. In their response to Dr Every-Palmer’s opinion, even Chorus’ legal advisers, Chapman Tripp, avoided directly suggesting that the Telecom decision constitutes binding precedent on the Commission in this case. Their view was rather that it was not about whether the Court of Appeal view on backdating was obiter or ratio to this PRD, but what was relevant was the fact that a superior court in New Zealand had expressed a view on backdating. While we acknowledge the relevance of the court’s views all parties seem prepared to acknowledge the obiter nature of the court’s comments in this case mean that the Commission retains a discretion.
285. And while the Court of Appeal’s opinion on backdating is influential in the current determination process we consider that the most meaningful aspects of that decision relates to the direction to ensure that the final price delivers efficient outcomes and can deliver those outcomes effectively for a reasonable period of time going forward.
286. In this case the Commission intends to set the regulatory period for 5 years from the date on which the PRD is effective. The new prices can therefore be effective for a full five year period without backdating.

287. In the *Telecom* case, the expressed harm to competitive outcomes was that Telecom sought to keep the determined price as high as possible for as long as possible during a period when the bilateral determination could well lapse. Enabling the access provider to continue to extract rents during an appeal process would have rendered the PRD in that case ineffective. That is not the case here. Backdating may be a tool to help ensure that the decision gives best effect to section 18. Equally it may be that backdating would jeopardise the Commission's ability to give best effect to section 18. In this case we consider that backdating any price increase, effectively undermining historic investments and competitive activity of RSPs and providing a windfall to Chorus would in fact put the Commission's ability to meet the section 18 purpose in jeopardy.

288. Chorus has also claimed that the Commission's 2013 decision to require that they reduce previous UCLFS transaction charges is also a precedent for backdating. Again it should be obvious that the UCLFS case was determined on the facts particular to it. Firstly UCLFS related to a section 30R review (not a FPP PRD) that was only required due to a technical or procedural omission by the Commission. The price for UCLFS had been set with effect from December 2012 by the Commission's UCLL re-benchmarking determination. That price was certain, final and known to all parties from December 2012 as was the Commission's view that UCLL and UCLFS prices be the same. Updating the UCLFS price list would have automatically flowed through but for the procedural omission. Chorus however refused to reduce the connection charges for UCLFS and resisted Spark's requests to do so. Had "backdating" not been required in that case Chorus would have benefitted from regulatory gaming. Our view of the Court of Appeal decision is that backdating is appropriate in cases where such gaming takes place or is intended to draw out market rents.

289. In reality we consider that the UCLFS decision was more a correction or clarification of the obligations that existed on a forward-looking basis from December 2012. It is entirely distinguishable from the current case where no party knows what price the Commission will eventually determine for UBA and UCLL.

Ways to lessen impact of backdating - no place for interest on backdated charges

290. We consider that if the backdating was implemented and a forward-looking payment plan was put in place there would be no justification of any interest payments to Chorus. To date RSPs have been charged the highest legally permissible prices for UBA and UCLL. There was no other price to pay for UBA, UCLL or UCLF. We have not been in default nor delayed payment to benefit ourselves or to the detriment of Chorus. In the circumstances there can be no justifiable reason for charging RSPs interest on payments for any price increase that the Commission considers should be given retrospective effect.

Backdating has significant implications for RSPs

291. Backdating would have significant implications for the industry. The regulated services the Commission is re-pricing relate to core services that make up 80% of what RSPs purchase from Chorus.

292. As noted above, the proposed price changes apply to different regulated services and, because RSPs have different exposure to these services, the impact will vary across RSPs.

293. The impact of backdating UCLFS prices on Spark alone for the period December 2012 to September 2015 would be between [] **SPKCI** assuming a final decision on 30 September 2015. The impact of backdating on Spark customers would be approximately [] **SPKCI**. Those impacts are, it goes without saying, material. They will directly affect both Spark's and our customers' ability to innovate use, and invest in broadband services and applications. By way of comparison, the impact on Spark

exceeds [
will be significant.

] **SPKCI** The resulting dynamic efficiency loss

END

Appendix 1: dispersion analysis

Publicly available evidence does not support the notion that high NZ prices are driven by customer location

294. The Commission concluded in the IPP, on the basis of dwelling density at the national level, that to deliver UCLL to customers, the NZ distribution network is sparser and longer than comparable countries, and that adjustment for this was appropriate. The draft determination for UCLL based on the TERA model also suggests a price significantly above European benchmarks despite limiting the extent of modelling with reference to the TSO boundary, and deploying a level of FWA.

295. Although we have been unable to carry out a detailed review of the geographic modelling carried out by TERA for the Commission, a range of external evidence suggests that NZ customer demographics is unlikely to explain the apparent premium.

296. Spark has examined evidence on average loop lengths in New Zealand based on information supplied to the Commerce Commission by Chorus in connection with the IPP benchmarking process in 2012. In paragraph 14 of the Commission's revised draft re-benchmarking decision,⁶⁵ they state that “[c]abinetisation has reduced the average copper loop length for the UCLL service from 2,066 metres, to 1,470 metres”.

297. While international benchmarking data on average route lengths is sparse, evidence before the Commission in 2012 showed that route lengths both before and after cabinetisation were consistent with the lower half of the sixteen countries sampled. This finding is consistent with more recent BEREC data on average loop length in European countries.⁶⁶ The Commission found that New Zealand's average copper loop length is not materially different to those in Italy, Sweden, Germany and Switzerland.⁶⁷

⁶⁵ *Revised draft determination on the benchmarking review for the unbundled copper local loop service - Draft Determination under section 30K and section 30R of the Telecommunications Act 2001* Commerce Commission 4 May 2012

⁶⁶ Since 2013 BEREC's Regulatory Accounting in Practice Reports have included structural data for 33 European countries. The 26 September 2014 Report in Figure 38 at page 52 shows anonymised data for average loop length for 18 jurisdictions. Nine countries had average loop lengths of less than 2 km, and six had average loop lengths less than 3km.

⁶⁷ *Ibid* at para 174

Figure 1: Commerce Commission 2012⁶⁸ (Emphasis added)

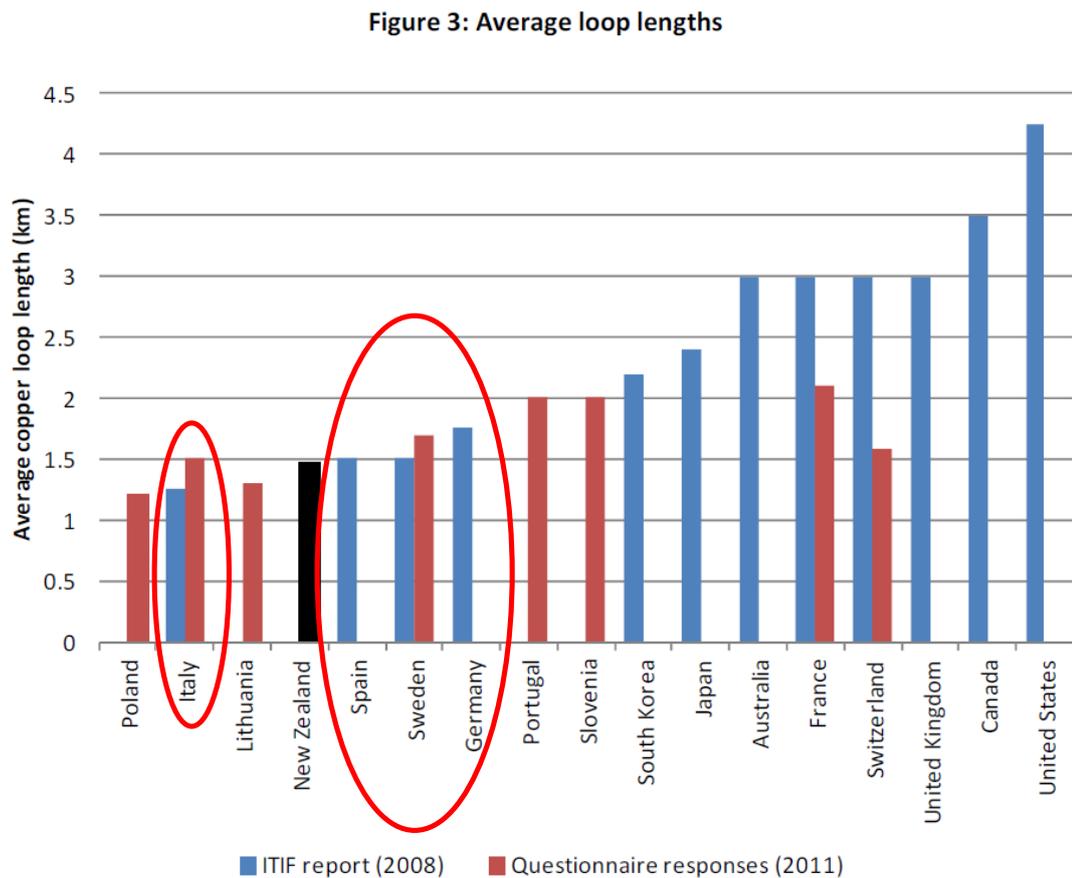


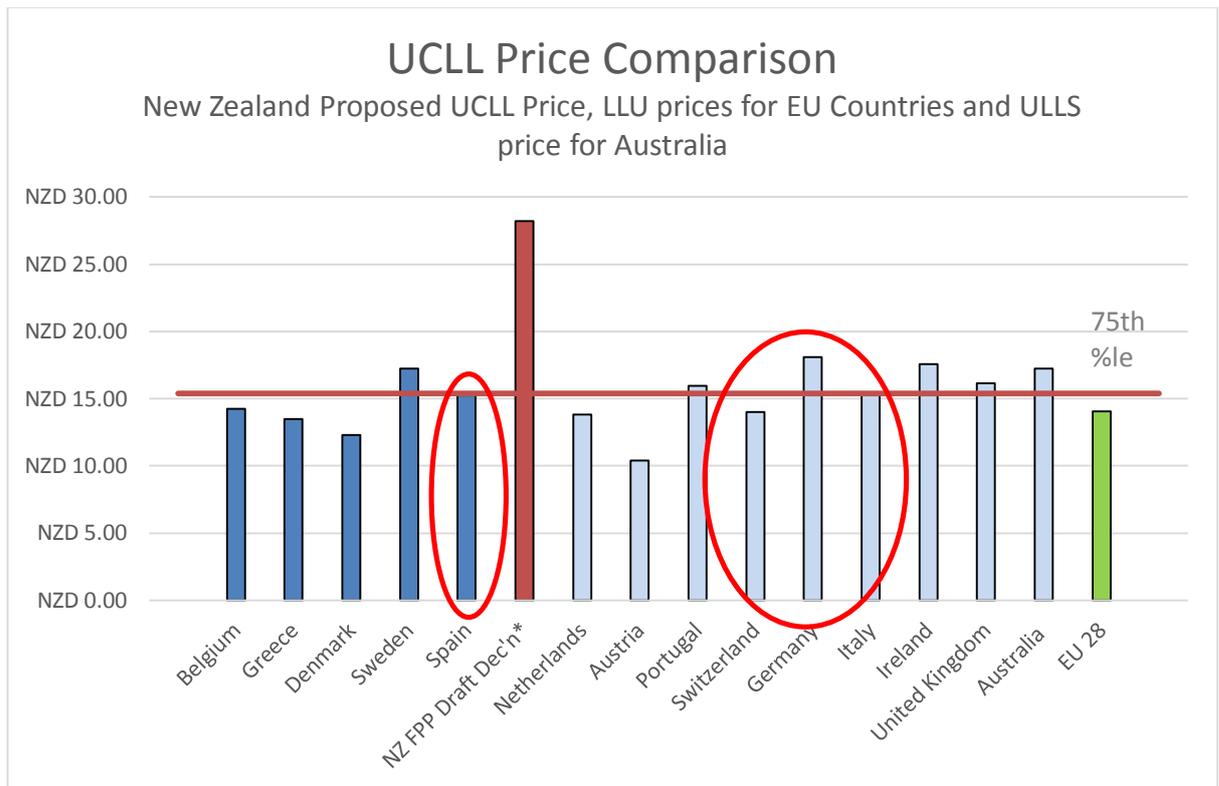
Figure 1: Commerce Commission 2012⁶⁹ (Emphasis added)

298. Surprisingly, the Draft Determination cost for UCLL is significantly above the level of regulated UCLL prices for those jurisdictions. While it would be unusual for the modelled price to be identical, there must be a rationale for the significant difference in cost. As Figure 2 suggests the Draft New Zealand UCLL price is some 80% higher than these four jurisdictions. The average UCLL price in NZD is \$15.68 in comparison with the NZ FPP Draft Decision price of \$28.22.

⁶⁸ Ibid at Page 38

⁶⁹ Ibid at Page 38

Figure 2: Sources Cullen, Commerce Commission 2015 and 2012 (Emphasis added)

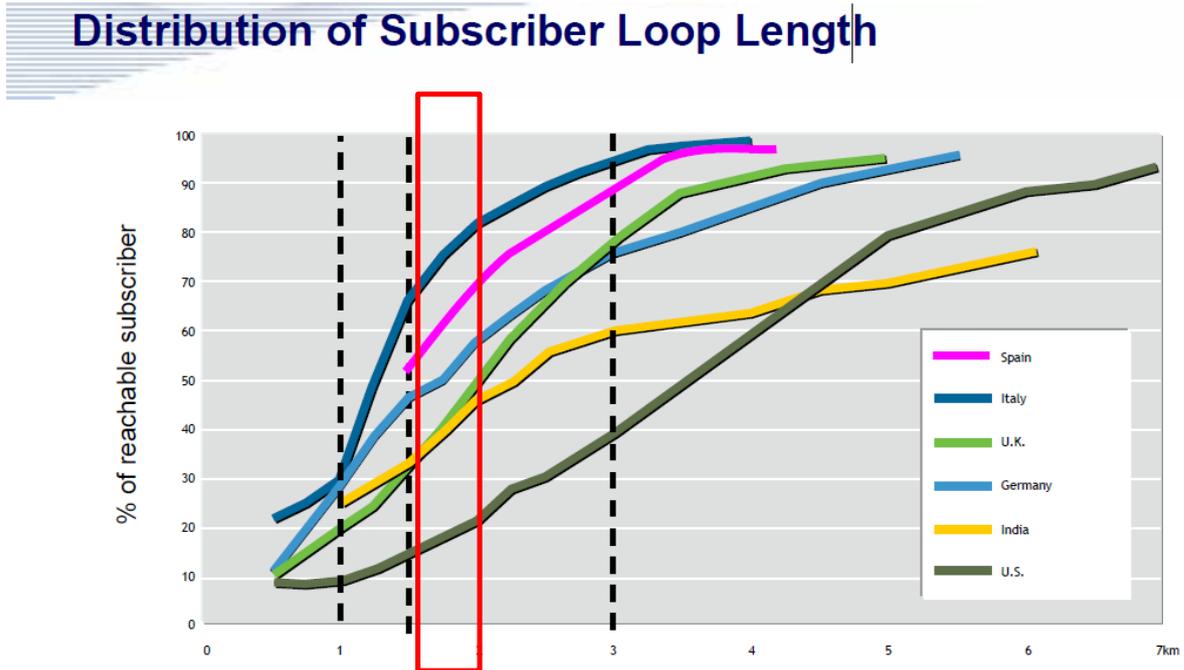


The drivers of costs for UCLL are fairly clear

299. The extensive consultation process surrounding the UCLL IPP and FPP processes have clarified for all parties just what the key cost drivers are for UCLL. Spark and its expert advisors have submitted extensively on many of these points. For present purposes, we focus on the key aspects of location related costs based on the number of exchanges and cabinets deployed to deliver the UCLL service, and the number, location and density of end-user premises based on GIS analysis. TERA's model includes the location of exchanges on a scorched node basis, the number of end-user premises based on demand and their locations and density based on GIS analysis.

300. We think it is well established that the principal driver of costs in relation to UCLL is the demand created by end-users and their locations for that service. Importantly, the costs of deployment will be non-linear. The distance from the distribution point to the end-user will generally be shorter in urban areas and longer in non-urban areas. For example, the ERG presented this data from

Figure 3: Source ERG Presentation 2007 - *Toward an ERG Position on Next Generation Access Networks*, slide 6. (Red box added):



301. The red box graphic indicates the approximate range of pre- and post-cabinetisation average loop lengths in New Zealand to enable comparison with Italy, Germany and Spain which the Commission considered comparable with New Zealand on its IPP comparability criteria.⁷⁰

302. In New Zealand, the TERA approach to the 2001 TSO Boundary, and the application of fixed wireless access as the MEA, mitigate the increase in cost attributable to the longest loop lengths. Similarly, in non-urban areas one could expect a larger number of long lead-ins. As previously submitted, the cost of these is met by the end-user, again mitigating the increase in cost of longer loop lengths.

303. The degree of sharing of trenches, ducts or other resources will be higher in urban areas and lesser in non-urban areas, and the costs of distribution will be higher in urban areas and lesser in non-urban areas. The differences in customer concentration will impact on the way in which these differences in costs interact.

New Zealand end-user locations and clusters

304. In its 2012 draft reconsideration, the Commission also found that the population density applying to New Zealand ESAs was 216 people per square meter, and the urbanisation rate for those locations 98.2%. The urbanisation rate for New Zealand as a whole based on 2011 estimates is 86.2%.

305. Although making inferences from sub-national population density data is difficult and can be misleading due to the lack of precision, the data clearly shows that New Zealand could be characterised as highly urbanised with relatively low urban density. The magnitude of the

⁷⁰ In the ITIF publication *Assessing Broadband in America: OECD and ITIF Broadband Rankings* the difference between European and United States rankings at the time was attributed to the difference in loop length at page 6: "European countries have been able to achieve higher speeds by relying on DSL enabled by shorter European local loop lengths."

regulated price differences based on local loop length means that sub-national population density is a reasonable proxy for end-user clustering in identifying the materiality of this cost driver.

High level of urbanisation in New Zealand

306. By world standards, New Zealand is one of the most urbanised nations. As long ago as 2006, approximately 72% of the population lived in the 16 main urban areas, and approximately 85.9 % lived in 138 recognised urban centres with populations of more than 1000 people covering approximately 2% of the available land. The 2012 Census data suggests that the intervening years is likely to have resulted in continued population movement from less urbanised to more urbanised areas.
307. The clustering of customers – where a customer is in relation to other customers – is a key factor in determining the length of the cables. This determines the route length of the network between the exchange and the customer which is the one of the key drivers of network and network related costs in the distribution network. The clustering of customers, even in comparatively small settlements with suburban levels of housing density, as a result is a key parameter.
308. The balance of New Zealand's land area according to recent World Bank statistics⁷¹ is made up very broadly of protected areas (approximately 25%), agricultural land, (approximately 43%), and forest areas (approximately 30%). 2011 estimates of urbanisation suggest that 86.2% of the population lives in urban centres with populations of more than 1000 people.
309. Although comparison of measures of urbanisation are not always precise, 2009 World Bank statistics indicate that New Zealand ranks among the most densely urbanised countries in the world. New Zealand cities have developed around lower density suburban builds rather than higher density urban builds, and in a manner more similar to Australia and the United States than to the United Kingdom or Europe.⁷²

Is the distribution of urbanised and urban influenced areas a cost driver?

310. Urban and urbanised areas outside the major city conurbations are more dispersed. We have analysed public data from New Zealand statistics, and find that approximately 75% of the population lives in the main urban areas and their immediate satellite urban areas, approximately 11% live in independent urban areas. Of the remaining 14% of the population, Statistics NZ census data suggests that approximately 7% of these live in rural areas with high and moderate urban influence adjacent to urban areas, while the remainder live in more rural locations.
311. The distribution of these urban and urban influenced areas across the New Zealand land mass does mean that a larger number of smaller exchanges were required to serve them. In general, cabinetisation has reduced the average loop length in areas with greater urban influence where exchange sizes were more subject to economies of scale when constructed.
312. On the basis of these sub-national population density statistics, there is likely to be a small number of customers that would be highly expensive to serve with copper telecommunication technologies. We note that the limitation of the 2001 TSO boundaries and the implementation of FWA for some end-users in the TERA model will reduce the impact of these customers on the modelled price.

⁷¹ <http://databank.worldbank.org/data/views/reports/tableview.aspx#> - 2011 New Zealand data

313. As far as we can determine Chorus have some 778 ESAs served by about 661 exchanges with MDFs scaled to the end-users they serve, and some 107 smaller sites providing more limited exchange functions. We also understand that TERA have modelled 790 exchanges for UCLL of which some 214 are smaller sites providing more limited exchange functionality. We note, subject to comments made in our earlier submission and expert advisor reports that TERA have endeavoured to model these exchanges to a more appropriate scale, and using modern equivalent assets to deliver functionality.

Conclusions based on subnational population data, exchange numbers and average loop length

314. Spark believes that there is no evidence to suggest that the dispersion of urban areas in New Zealand will drive the difference in costs observable between the New Zealand Draft Determination UCLL price and the European benchmarks. The increased scalability of the technologies used in the modern equivalent assets employed in exchanges reduces the impact of scale economies on costs per exchange.

315. Subnational population density data for New Zealand, and the Commission's 2012 data on urban ESAs strongly suggests that there is a significant degree of clustering of end-users in urbanised and urban influenced locations. The combination of average loop length statistics, with this data strongly suggests that dispersion of customers is not a sufficiently significant cost driver to explain the difference between the Draft Determination FPP price and regulated European UCLL prices.

Attachment 2: Russell McVeagh legal opinion

Provided as a separate document.

Attachment 3 WIK report

Provided as a separate document.

Attachment 4: NWS report

Provided as a separate document.