

# Telecommunications Act Review: Economic Issues

Prepared for

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Coalition for Fair Internet Pricing

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# Executive Summary

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1. The Government has brought forward a scheduled review of the Telecommunications Act (2001), isolated one particular issue, and released a discussion document on that issue. This submission examines the discussion document from an economic perspective. It was requested by the Coalition for Fair Internet Pricing, however the analysis and views expressed here are the result of independent work by the authors.
2. The issue addressed in the discussion document stems from a package of amendments made to the Telecommunications Act in 2011. That package enabled the splitting away of network operator Chorus from what was previously a vertically integrated Telecom. It also set the policy framework for the government's ultra-fast broadband (UFB) initiative.
3. To smooth the transition to fibre, the package of amendments allowed Chorus to continue pricing unbundled bitstream access (UBA) on a retail-minus basis for three years (to the end of 2014), after which the Commerce Commission would be required to set cost-based prices. The package also required that the Commission cease geographic de-averaging the cost of the unbundled copper local loop (UCLL) service, meaning that prices for this service would rise in the urban areas where the UFB network is primarily being built.
4. These changes were known by UFB investors at the time they contracted with the Crown. However some parties said they were surprised when the Commerce Commission issued its draft determination in December 2012 on UBA pricing and the Prime Minister described it (on the same day) as "very problematic".
5. The discussion document is the government's response to this perceived problem. It proposes that the total price of access to copper services be *increased* from whatever level the Commerce Commission sets, to the same level as contract prices for low-end UFB services, and invites comment on three ways of achieving that outcome. The government also intends to extend the freeze of UBA prices at the current level for a further year, until the end of 2015. In this report we treat this price freeze and the proposals in the discussion document as a single package of proposals.
6. We strongly disagree with these proposals, and are very disappointed with the lack of analytical rigour in the discussion document.
7. The proposal itself, by increasing copper prices, would
  - a. Transfer around \$600m to Chorus from its customers over the period to 2020;
  - b. Work against the aims of UFB by deterring overall uptake of broadband and uptake and development of new productivity-enhancing applications; and
  - c. Weaken competition between the three forms of broadband infrastructure (copper, fibre and wireless).

8. Thus, contrary to the purpose of the Act, and contrary to a statutory requirement of the Review, the Government's proposal would not "promote competition for the long-term benefit of end-users". On the contrary, it would weaken competition in telecommunications markets and harm end-user interests in both the short-term and the long-term.
9. Ordinarily, a formal proposal in a government discussion document would not generate such harmful outcomes. There may be several reasons that this has occurred, but one of the most obvious is the standard of analysis in the document. Contrary to norms of sound regulation promulgated by the Treasury, the document does not:
  - a. Clearly state the problem it seeks to address;
  - b. Consider a range of options for addressing it; or
  - c. Undertake a cost-benefit analysis comparing the options to the status quo.

These weaknesses are inter-related. In order to develop other options, one needs a clear problem definition. We detect two possible problem definitions in the document.

10. One is a desire to stimulate switching from copper-based services to UFB services. We agree that increasing copper prices would tilt the market in this direction, but that is not the only option for doing so. Furthermore, incentivising UFB take-up by taxing copper directly creates detriments for end-users, while the benefits are in the future and uncertain.
11. An obvious alternative to taxing copper that would not harm end-users, which is not explored in the document, is to make fibre more attractive. That is particularly easy because the entry level UFB services have rather modest speeds. For the same price, it would be easy to offer much better speed. That would tilt the market in favour of UFB without taxing copper.
12. The most serious downside of taxing copper would also be avoided. That is the inequitable penalty imposed on all users of copper-based services, most of whom will not switch to fibre before 2020, if at all. All rural customers and a total of 25% of customers nationwide will never have access to UFB, yet it is proposed to tax them. Even on the most optimistic forecasts, only 30% of broadband customers will have migrated to UFB by 2020.
13. If the "promotion of competition for the long-term benefit of end-users" was used to compare taxing copper with enhancing UFB, the proposal in the discussion document would be revealed to be inferior.
14. The second problem definition we detected in the document was a desire to improve Chorus' finances, but not those of the other UFB builders. This is also an effect of the proposal, but again there are other options available. For example, Chorus could raise new equity capital, an initiative that has appeared necessary from the beginning given the massive scale of the investment it is undertaking. Another option would be to

suspend or scale back its dividend payments, which would be commensurate with a growth stock undergoing a once-in-a-generation major asset build. We note that Chorus's dividend payment of \$95m is over 80% of the \$115m after tax revenue loss to Chorus that the Prime Minister described as "very problematic".

15. Either of these alternative options would better promote competition for the long-term benefit of end-users than the copper tax proposal. They would also avoid other significant detriments such as:
  - a. Politicising what should be an independent regulatory process;
  - b. Increasing uncertainty for firms competing with the Crown's private partner and making significant investments in alternative infrastructure such as LTE mobile networks; and
  - c. Creating a moral hazard that may encourage future private partners to seek policy changes to enhance their own post-contract finances.
16. In conclusion, we strongly recommend that this entire document be withdrawn and reconsidered. If necessary, a sound and principled analysis could then be commenced, grounded in normal standards of good public policy development and regulatory analysis.

# 1 Introduction

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17. We comment on economic issues raised by the discussion document published by the Ministry of Business, Innovation and Employment (MBIE) regarding the review of the Telecommunications Act 2001 (the Act).<sup>1</sup> This report was prepared at the request of Internet NZ, Consumer NZ and TUANZ, but the views expressed in it are our own independent views and not necessarily those of our clients.
18. The discussion document sits within a wider review of the Act that is required to be commenced by 30 September 2016. The document focuses on a relatively narrow set of issues within that review, relating to the pricing of two unbundled wholesale services that use Chorus's copper access network: the unbundled copper local loop (UCLL) service and the unbundled bitstream access (UBA) service.
19. The UCLL service gives retail service providers (RSPs) direct access to the copper line to a customer's premises and is used by RSPs that have invested in their own electronics in exchanges to provide telecommunications services to end users. The UBA service gives access to a bitstream service provided by Chorus's own equipment over the copper network, and is used by RSPs in combination with UCLL to provide services in areas where they have not installed their own equipment. The cost faced by an RSP to use UBA to serve a customer is the UCLL price plus the UBA increment.
20. Prices for UCLL and UBA are regulated under the Act and are set and reviewed periodically by the Commerce Commission. The discussion document proposes three options that involve changing the way these prices are set. There are some differences between the options, but all involve the Government directly setting the total copper access price (ie the price of UCLL plus UBA) at a level equal to access prices that have been negotiated for services provided over the fibre ultra-fast broadband (UFB) network that Chorus and other companies are currently building.
21. The prices for UCLL and UBA are important because they affect the prices paid by the majority of broadband consumers in New Zealand. According to the latest Commerce Commission telecommunications market monitoring report, there were approximately 1.25 million fixed-line broadband connections in New Zealand in 2012, and 78% of residential fixed-line subscribers had a broadband connection.<sup>2</sup> The vast majority of these broadband customers are served using Chorus's copper network. According to the OECD, only 0.65% of New Zealand broadband customers were served using fibre networks in 2012.<sup>3</sup>
22. Usage of the copper network to provide broadband services to New Zealand customers is expected to remain high for quite some time. It will take until 2019 to build the UFB network out to 75% of New Zealand homes, and the remaining 25% will not receive access to that network. Furthermore, the UFB contracts specify minimum take-up of

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<sup>1</sup> *Review of the Telecommunications Act 2001: Discussion Document*, Ministry of Business, Innovation & Employment, August 2013.

<sup>2</sup> *Annual Telecommunications Monitoring Report 2012*, Commerce Commission, April 2013.

<sup>3</sup> *OECD Broadband Portal*, available at <http://www.oecd.org/sti/broadband/oecdbroadbandportal.htm>

only 20% of that 75% (ie 15% of households) by 2020, while reasonable forecasts are at most 40% take-up by 2020.<sup>4</sup>

23. Thus under the best case scenario, 30% of New Zealand households will be using UFB by 2020, with the remaining 70% using the copper network and wireless services. While wireless broadband services may become more popular if prices fall and greater capacity is available on new networks (eg LTE), it seems reasonable to expect that at least 50% of New Zealand broadband customers will still be using the copper network in 2020, and possibly significantly more than 50%.
24. The government's proposals to directly set copper access prices will therefore have a significant effect on the prices faced by most New Zealand broadband consumers over approximately the next decade at least. For the reasons explained in section 2.1 below, we estimate that the total copper access price (UCLL + UBA) will be between \$4 and \$9 higher per customer per month than it otherwise would be, as a result of the options proposed in the discussion document. Important consequences will be a significant transfer of cash from broadband customers to Chorus and a reduction in broadband penetration and usage.
25. A policy proposal that creates such large and long-lasting detriments needs to be supported by rigorous analysis demonstrating clear benefits that outweigh the detriments and giving due consideration to reasonable alternatives. It is also necessary to consider the broader implications of the proposals in the discussion document for the incentives of private businesses and investors. In contrast, the discussion document presents only a partial analysis based on questionable assumptions.
26. In the following sections, we elaborate on our concerns regarding:
  1. The consequences of the options proposed in the discussion document;
  2. The decision-making process used by the Government and broader implications of the flaws in that process; and
  3. Some aspects of the analysis by MBIE of the options.
27. We also offer suggestions for alternative interventions that could have fewer detriments than the three options in the discussion document.

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<sup>4</sup> *Submission in response to the Commerce Commission's Draft Determination to amend the price payable for the regulated service Chorus' unbundled bitstream access made under s 30R of the Telecommunications Act 2001*, Chorus, February 2013.



## 2 Consequences of the options

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29. The three options presented in the discussion document work slightly differently, but all have the effect of pegging the total copper price (UCLL + UBA) to the range of low-end UFB prices (these start at \$37.50 and increase by \$1 each year to \$42.50). This has direct consequences for broadband consumers and for Chorus. There are also consequences for competition in broadband markets, development of internet applications and services, and broader consequences for private investment in infrastructure.
30. It is important to note that the impact of the proposal in the discussion document is to *increase* the price of copper services, not to reduce it. If the government's proposal did not exist, the price of copper services would fall substantially, because UBA would be set on the basis of its cost as mandated in the 2011 reforms. The aim and effect of the government's proposal is to *increase* the price of copper from that point.

### 2.1 Effects on broadband consumers and Chorus

31. Figure 1 shows the total copper price under all of the Government's options, compared to the current price and the price that would arise from the current UCLL price plus the median of the Commerce Commission's latest benchmarking of UBA prices.<sup>5</sup> A week after the discussion document was issued, the Commission issued a new paper arguing that it should set a price for UBA that exceeds the median of its two benchmarks, but it has received strong submissions against that proposal.<sup>6</sup>
32. The options set out in the discussion document therefore have significant negative impacts on a large number of broadband consumers immediately and these effects persist over a long period of time. As time goes on, two things would happen: the price will increase (\$1/month each year) which would increase the tax on copper; and some customers will migrate to copper and stop paying the tax.
33. In the Appendix, we demonstrate that on very conservative assumptions, the net present value (NPV) of the transfer to Chorus created by the Government's proposal over the period to 2020 is just under \$600m.<sup>7</sup> Other local fibre companies (LFCs) building the UFB network for the 30% of customers not covered by Chorus's network will not directly benefit, as these LFCs do not have copper networks and do not supply UCLL and UBA services.

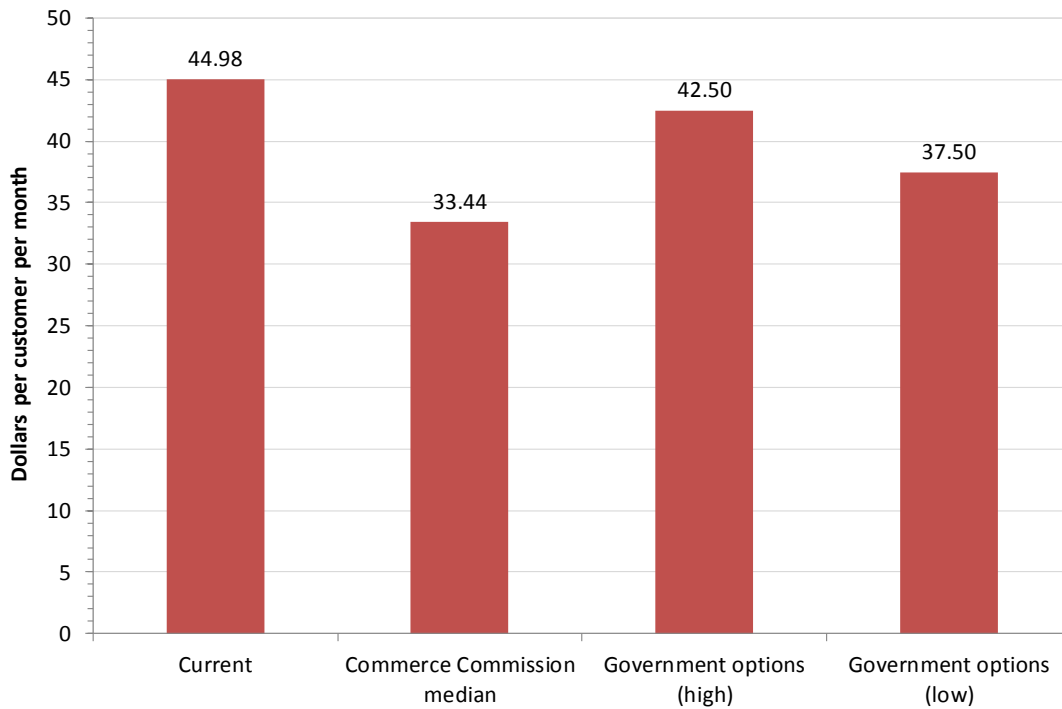
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<sup>5</sup> *Unbundled Bitstream Access Service Price Review*, Commerce Commission, 13 August 2013.

<sup>6</sup> See our submission and others, available at <http://www.comcom.govt.nz/regulated-industries/telecommunications/standard-terms-determinations/unbundled-bitstream-access-service/section-30r-reviews-of-uba-std/uba-benchmarking-review/>.

<sup>7</sup> This includes the impact of extending the price freeze on UBA to the end of 2015.

Figure 1 Total copper access prices (UCLL + UBA).



34. The price effects illustrated in Figure 1 are based on the current UCLL price (\$23.52). The Commerce Commission is also currently undertaking a cost-modelling exercise to set the price of this service under the final pricing principle (FPP) in the Act. The Government's options either freeze the UCLL price at its current level or cause it to rise as high as \$32.58 under two of the options.<sup>8</sup>
35. The proposals in the discussion document therefore also deny consumers any potential benefits from lower prices that could arise through the UCLL FPP. For example, to the extent that the UFB network shares assets such as ducts and manholes with the copper network, such cost sharing would be expected to generate lower UCLL costs.<sup>9</sup> We note that ducts and manholes account for 27% of the book value of Chorus's network assets, indicating significant potential for cost sharing between copper and fibre.<sup>10</sup>
36. As well as transferring large amounts of cash from consumers to Chorus, the Government's proposal will reduce overall broadband uptake in New Zealand relative to what would occur otherwise. In a paper relied on by the Commerce Commission and

<sup>8</sup> The level of the UCLL price under the Government's options depends on the UBA price. If the UBA price is set at the Commerce Commission's median of \$9.92 then the UCLL price can rise up to \$32.58 under options one and three.

<sup>9</sup> This is consistent with the way that the Commerce Commission treats cost sharing in other regulated industries such as electricity lines businesses.

<sup>10</sup> Chorus Annual Report 2013, Note 1.

its expert Professor Ingo Vogelsang, the price elasticity of DSL broadband is estimated by Shinohara *et al* (2011) to be -0.95, ie slightly inelastic but still quite price sensitive.<sup>11</sup>

37. Assume for the sake of argument a retail broadband price currently of \$80 per month that would fall to \$76 (ie a 5% price reduction) if not for the Government's intervention. Given a price elasticity of -0.95, this implies the Government's intervention would prevent an increase in broadband penetration of 4.75%, or around 59,000 customers given 1.25 million broadband customers currently.
38. Thus the Government's proposal to maintain an artificially high price of copper broadband will retard the development and uptake of internet services in New Zealand. This will also hinder the development of new online applications, with adverse consequences for productivity, economic growth and consumer welfare. We discuss this further in section 2.3 below.

## **2.2 Effects on competition in broadband markets**

39. The primary purpose of the Telecommunications Act is to promote competition for the long term benefit of end-users (LTBEU). Consideration of the way the policy framework achieves this competition is also a compulsory requirement for the review.
40. Analysis of competition is complicated because of different effects of the three options on UBA and UCLL prices, which affect copper-on-copper competition. In addition, the assumption of copper-fibre price equalisation has an effect on competition between copper and fibre and between copper and mobile broadband. To outline the main effects, we use two sub-sections.

### **2.2.1 Competition between copper and other technologies**

41. The easiest starting place is competition between copper and other technologies used for providing broadband. Copper-fibre price equalisation will increase the price of copper-based broadband services. This unambiguously weakens competition between copper and other broadband technologies.
42. The reasoning is simple. Note first that price is only one dimension on which services compete; the other is "quality" which itself may include many dimensions. Quality is relevant here because both mobile and fibre technologies offer qualities that copper cannot: mobility and ultra-fast speed.
43. The entry level fibre-based broadband services has speeds of 30/10Mbps, which is broadly equivalent to a good quality DSL service, but very inferior to the service quality that the fibre network could offer. The proposed increase in copper price weakens the need for fibre to play to its inherent advantages by offering consumers better quality. This is a clear indicator of weakened competition.

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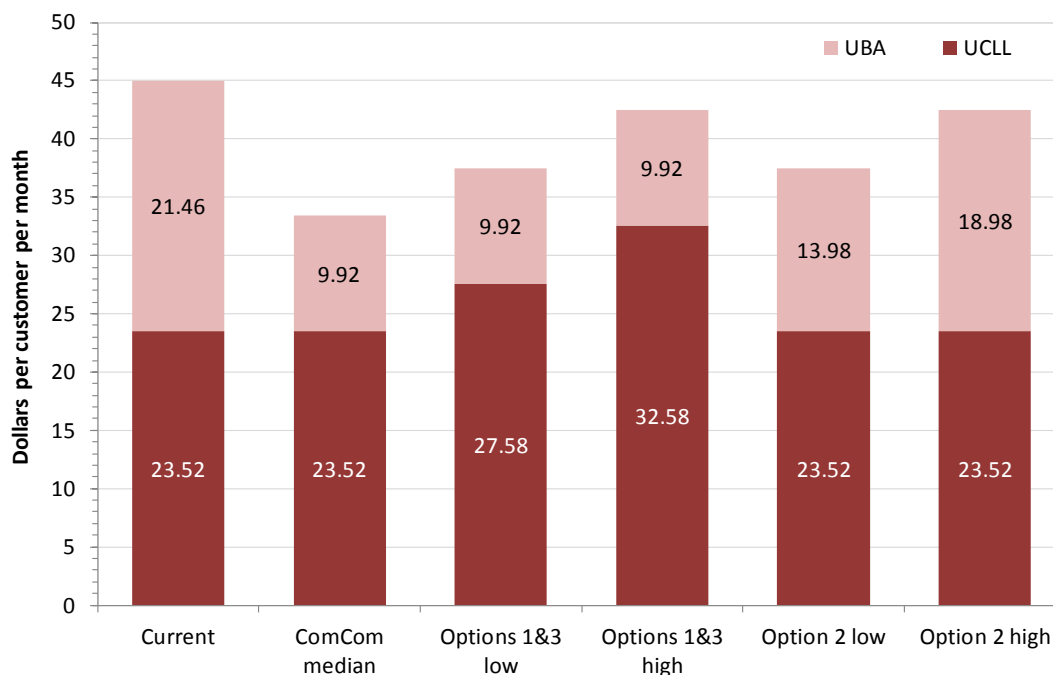
<sup>11</sup> Shinohara, S., Y. Akematsu & M. Tsuji (2011). *Analysis of broadband services diffusion in OECD 30 countries: Focusing on open access obligations*. Available at <http://www.econstor.eu/handle/10419/52312>.

44. The same basic point applies to competition between copper and mobile broadband: the higher is the copper price, the easier it is for mobile broadband to win customers without offering better value. Clearly the proposal weakens competition between copper and other technologies.

### 2.2.2 Competition within copper

45. To analyse competition between copper based services, we assume that options 1 and 3 deliver the same outcomes. We also include the expected status quo outcome, which is that the Commerce Commission sets a UBA price at the median of its benchmark set (\$9.92). These three options are graphed against the current pricing in Figure 2.
46. Bearing in mind that Telecom will be able to unbundle from the end of 2014, it is clear that option 2 will promote that investment by setting the UBA price above the cost of UBA. To the extent that Telecom does invest heavily in unbundling, it will want to recoup that investment before seeking to migrate customers to fibre. We understand that a five-year payback is a normal expectation, so under this scenario Telecom would not actively seek to migrate customers to fibre until 2020. In the meantime, it would compete strongly against existing unbundlers, who are regarded by the Commerce Commission as price leaders.<sup>12</sup>

Figure 2: Component pricing under different options



<sup>12</sup> We note that the Commission views these firms as valuable competitors as discussed in its clearance decision on Vodafone's acquisition of Telstra Clear (Decision 33/12, paragraph 157) where it said, for example: "There is evidence to suggest that Orcon and Slingshot are currently price leaders in the fixed voice and broadband market"

47. In contrast, under options 1 and 3, Telecom can be expected to pursue an UBA-based strategy, since UCLL is priced well above cost whereas the price of UBA is cost-based. We note also that options 1 and 3 would also delink the UCLFS price from the UCLL price. This would have the effect of enhancing Telecom's competitive position relative to unbundlers, and making it more difficult for unbundlers to see VOIP services. The only reason given in the discussion document for this carve-out is at ¶205 which says that "end-users who only use voice services should not be subject to the new UCLL price set by the Commission (as they don't benefit directly from the fibre upgrade)". But this is also true of *any* end-user that continues to take copper-based services.
48. Under the status quo, no firm prediction can be made about Telecom's conduct because there are no material arbitrage opportunities.
49. Under all three options, the retail price of copper-based broadband services is likely to fall, as RSPs compete away the difference between current retail prices and new wholesale costs. It is clear that there is more scope for these competition-based price cuts under the status quo (the Commerce Commission median price for UBA). On that basis, this appears to be the option that most promotes competition for the LTBEU.
50. A possible complicating factor concerns the fate of existing unbundlers. Compared with Telecom, these are much smaller firms<sup>13</sup> with correspondingly higher unit costs.<sup>14</sup> These firms use UBA and UCLL as complementary services, because UCLL is only viable from exchanges whereas around half of the network has been cabinetised and needs to be accessed via UBA. It is not clear whether this sector could survive an aggressive expansion by Telecom. If not, an assessment would be required as to whether the LTBEU would still be promoted in the event that competition resulted in the exit of these firms.

### **2.3 Effects on development of internet markets and productivity**

51. The combined effect of higher prices for copper broadband and weaker competition in broadband markets over the next seven to ten years will be to suppress demand for internet services in New Zealand. As noted by Professor Vogelsang in his paper for the Commerce Commission, broadband is an "experience good" and consumer demand for it increases with use, as people realise the possible uses for broadband.<sup>15</sup>
52. Thus much like firms investing in infrastructure climb a "ladder of investment", consumers of broadband climb a "ladder of consumption". They start with a basic service, and demand grows over time for more advanced services that require greater bandwidth, as consumers get comfortable with the technology and learn how they can benefit from it.

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<sup>13</sup> The Commerce Commission's 2012 Annual Market Monitoring report cited Telecom's "home internet" share as 49%, much higher than CallPlus (9%) or Orcon (5%).

<sup>14</sup> Unit costs vary with the utilization of MSANs and DSLAMs. While these can be scaled to some extent, they still involve lumpy investments. Telecom could expect materially higher utilization rates, and correspondingly lower unit costs than smaller unbundlers.

<sup>15</sup> Professor Ingo Vogelsang, paper for the New Zealand Commerce Commission, 5 July 2013, at paragraph 46.

53. Higher prices for copper broadband discourage consumers from climbing the ladder of consumption, and will delay some consumers from getting on the ladder. This will reduce the rate at which consumers take up fibre broadband, everything else equal. In turn, that will reduce the incentives to develop and deploy new applications (eg high definition video on demand) that use the capabilities of the UFB network.
54. Recent research has highlighted that mere take-up of broadband is not enough to increase business productivity.<sup>16</sup> Greater productivity comes from the use of internet applications such as online ordering and payment processing, but the rate of use of applications such as online ordering and payment by New Zealand businesses is low.<sup>17</sup>
55. The Productivity Commission has identified this as a potential issue in its inquiry into the services sector, and is undertaking further work into barriers to adoption of ICT applications by service firms.<sup>18</sup> In our view, the Government's proposal to maintain artificially high copper broadband prices will only serve to exacerbate these problems and will hinder productivity improvements in information-based industries such as the services sector.
56. For example, the Productivity Commission cites research suggesting that around 70% of overall productivity improvements in the United States between 1995 and 2007 were due to greater productivity in the services sector, with much of that improvement attributed to greater use of ICT by retail and wholesale trade, transport services and business services firms.<sup>19</sup>
57. We note also that the discussion document cites work by Alcatel Lucent on the economic benefits of broadband over a twenty year horizon (¶154). The deterrence of demand by increasing broadband prices as proposed in the discussion document will clearly reduce these benefits.<sup>20</sup>

## 2.4 Effects on infrastructure investment

58. The UFB programme can be thought of as a type of public-private partnership (PPP), as it involves a combination of public and private investment, and some sharing of risk. The structure of the deals between the Government and LFCs means that the

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<sup>16</sup> *Internet usage and New Zealand productivity: Improved take-up for improved prosperity?* Hayden Glass, Sapere Research Group, presentation to the Productivity Commission Symposium, 2 July 2013, available at

<http://www.srgexpert.com/Productivity%20Hub%20Symposium%202%20July%202013.pdf>.

<sup>17</sup> *Applications of ICTs in the NZ Services Sector*, Hayden Glass and Aaron Schiff, available at

<http://www.covec.co.nz/pdf/ICT-applications-in-the-services-sector.pdf>.

<sup>18</sup> *Boosting productivity in the services sector: 1st interim report*, Productivity Commission, July 2013.

<sup>19</sup> *Boosting productivity in the services sector: 1st interim report*, Productivity Commission, July 2013. See section 2.6.

<sup>20</sup> Incidentally, the Alcatel Lucent study erroneously counts the expenditure on UFB infrastructure, and the multiplier effects of that spending, as a benefit to the New Zealand economy. That is not correct. These are costs (not benefits) because they involve the use of resources that would have other uses if the UFB network was not built.

Government contributes interest-free debt and bears uptake risk, while private investors also contribute capital and bear the build cost risk.

59. We discuss risks and investor uncertainty in section 4.4 below. For now it is sufficient to say that in our view the risks faced by private investors in UFB were known or should have been known at the time the contracts were signed. This includes risks associated with build cost for all LFCs, and risks associated with reductions in the prices of UBA and UCLL for Chorus under the IPP or FPP. Acceptance of such risks is a normal feature of investment and commercial contracts, and a reward for these risks will have been factored into the UFB prices.
60. The Government's roles as investor and lawmaker put it in a difficult position in regards to PPP-type arrangements. The Government's ability to change the rules if an adverse risk is realised creates a moral hazard problem. Private investors in partnership with the Government will have an incentive to lobby for law changes to their advantage after contracts have been signed. Such problems will be exacerbated by the Government's imperfect ability to analyse the financial position of the private partner.
61. The moral hazard problem can be eliminated or significantly reduced by delegating authority to make such decisions to an independent third party, such as the Commerce Commission. This was the case when the UFB deals were done, but such delegation is only as good as the Government's commitment to it. While it is tempting for the Government to intervene when there appears to be a problem, doing so undermines this commitment and increases the incentives of private partners to lobby for special treatment in future.<sup>21</sup>
62. Thus the Government's proposal to usurp the Commerce Commission and set copper prices directly creates a poor precedent for similar collaborations with private investors in other regulated sectors, such as transport and electricity.<sup>22</sup> A result of the Government's proposals is an increase in the probability of private partners claiming "problems" under future PPPs, with corresponding requests for financial support.
63. Furthermore, the options in the discussion document reduce risks for Chorus's investors but increase risks for other investors making significant investments in competing technologies including copper unbundling, mobile and wireless networks. The Government's proposal thus creates regulatory uncertainty. It sends a signal to investors in competing technologies that the Government may shift the ground under their feet to favour the Government's investment partner. The New Zealand telecommunications sector, excluding Chorus, invested around \$1 billion in 2011/12.<sup>23</sup>

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<sup>21</sup> For a simple game theoretic treatment of commitment issues and ways to establish credibility in strategic situations, see chapter 10 of *Games of Strategy*, second edition, by Avinash Dixit and Susan Skeath, W. W. Norton and Company, 2004.

<sup>22</sup> These problems persist even under option one in the discussion document, as that option involves the Government removing the Commission's ability to set the total copper price.

<sup>23</sup> *Annual Telecommunications Monitoring Report 2012*, Commerce Commission, April 2013.

64. Private investors are currently making significant investments in LTE networks in New Zealand. LTE is important because in many cases it can be a viable substitute for fixed-line broadband services. Technical experts inform us that the distribution of bandwidth is heavily skewed, with around 4% of users being responsible for around 75% of bandwidth demand. Provided the extremely heavy users are steered towards fixed-line services, LTE is capable of replicating and even exceeding DSL grades of service, notwithstanding the issue of contention ratios.
65. Thus it is likely that LTE will be competing in the same market against copper- and fibre-based services. As explained in section 2.2.1 above, higher copper prices will weaken this competition. Furthermore, whereas the Government seems to hope that users will migrate to fibre sooner if it sets high copper prices, some users will surely find LTE a more attractive option. For service providers, having sunk capital into LTE capacity, there will be a strong incentive to drive traffic onto LTE infrastructure, and higher copper prices will further increase this incentive. Thus, while increasing copper prices may drive some extra business to fibre, LTE will claim a significant share of those switching from copper.
66. Overall, we expect that the regulatory uncertainty created by the Government's proposals will have a chilling effect on investment in new technologies, particularly those such as LTE that compete in the same market with technologies that the Government is investing in. That will have long-term consequences for competition and innovation in infrastructure markets.



### 3 Process issues

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67. The structure of the legislative review and the discussion document itself raise a number of high-level concerns regarding problem definition, reliance on untested assumptions, lack of consideration of reasonable alternatives, and lack of cost-benefit analysis. We refer to these as process issues as they relate to the overall process used to arrive at the recommendations in the discussion document.
68. In several jurisdictions, government agencies have developed principles and guidelines for sound analysis of regulatory and related policy issues. The New Zealand Treasury drew on some of this work when it published its own “best practice” guidance in July 2012.<sup>24</sup> We have reviewed the discussion document against the indicators in the Treasury guidance and consider that it fails on the following measures.
- a. Identifying and justifying trade-offs between economic and other objectives is an explicit part of decision-making;
  - b. A risk-based, cost-benefit framework is in place for both rule-making and enforcement;
  - c. Decision-making criteria are clear and provide certainty of process;
69. Along the same lines, we note that the Prime Minister’s science advisor has recently warned that too much policy making in New Zealand is being driven by “gut instincts instead of hard evidence”.<sup>25</sup> In this section we explain our serious concerns about the analytical basis for the proposals in the discussion document.

#### 3.1 Unclear problem definition

70. The discussion document is presented as a review of the policy framework for regulating telecommunications services in New Zealand, as mandated by the Telecommunications Act. But that review has been advanced and narrowed because a number of components of the policy framework differ in “timing and urgency” (¶6).
71. This approach indicates there is an urgent problem to address. What is that problem? We are told (¶11,12) that the “upgrade” of “the underlying fixed line network” raises “unique issues about how to price access to both the copper network and to the fibre network”.
72. The problem is therefore presented (¶15) as concerning “the relative price of access ... to the copper network and ... the fibre network”. This is said to affect “the economics of the roll-out of fibre”. The problem therefore seems to relate to the *roll-out* of fibre.

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<sup>24</sup> New Zealand Treasury, July 2012, The Best Practice Regulation Model: Principles and Assessments

<sup>25</sup> <http://www.stuff.co.nz/dominion-post/news/9140824/Scientific-research-ignored-by-policy-making-teams>

73. Further on (¶151) it is stated that “the pricing of copper will directly impact the uptake of, and the *business case for investing in, fixed replacement networks,*” and reference is made (¶152) to a “debate ... on *whether and how* the pricing of legacy infrastructure should *support* a transition to new technologies” (emphasis added).
74. These are the only clues to the problem definition and they are insufficient. In particular, it is not clear whether the problem is
1. Efficient migration of RSPs and end-users from copper to fibre; or
  2. A desire for extra financial support for UFB construction.
75. These are different problems, and the sets of options that would address each are disjoint. For example, if the problem is efficient migration to fibre, one would investigate all of the factors that influence the preferences of RSPs and end-users. Importantly, that analysis would focus on *quality adjusted* prices, and recognise that fibre networks can easily provide much higher grades of service quality than copper networks.
76. Conversely, if the problem is to find extra financial support for UFB construction, then one would investigate all of the options for enhancing the financial position of UFB builders. That would include the raising of equity capital by UFB builders, and possibly as a last resort some expansion of the government’s financial subsidies to those firms.
77. We note also that the proposed solution of increasing copper prices does not properly address problem (b) above, because it only provides financial benefits to Chorus, but 30% of the UFB network is being constructed by other companies.
78. We conclude that the problem definition is unclear. This is a serious procedural error because all of the other analysis that accompanies sound policy development (search for options, assessment of costs and benefits) relies heavily on a clear and accurate problem definition. The lack of clarity in problem definition makes it difficult to determine appropriate solutions to the problem (if any). We return to this in section 3.3 below.

### **3.2 The discussion document is assumption driven**

79. The discussion document moves directly from an unclear problem definition to a single conclusion: that total access prices for copper be set “by reference to fibre prices”. From that point, three options are considered and comment is invited on aspects of these three options. However the discussion document neither tests nor invites comment on the core assumption underlying each of these options.
80. Chapter four of the document attempts to describe a rationale for the assumption, which is motivated in the following way:

(¶159) The investment in fibre is an order of magnitude larger than other recent telecommunications investments. The investment is being undertaken by entities that do not have retail arms to cross-subsidise wholesale operations, and the

investors are subject to contractual obligations that give rise to significant liabilities if build commitments are missed.

(¶160) Allowing sufficient revenue from legacy services to fund investment in new, higher speed replacement networks will benefit consumers.

81. This reasoning is certainly adequate to include price alignment as one of the potential solution options. Indeed, one of the core principles of cost-benefit analysis is that the search for solution options should cast a wide net.
82. Unfortunately, there is no attempt in the discussion document to test the copper-fibre price equalisation option any other options, or to assess it against the statutory requirements for the review. In particular, we note that s157AA(2)(a)(i) requires the following.

“The review *must*... consider whether the existing regulatory framework under the Telecommunications Act 2001 is the *most effective* means to...promote competition for the long-term benefit of end-users.” (emphasis added)

83. There is a significant gap between this requirement, which clearly envisages that several options will be considered and the *most effective* chosen, and the bald unsupported assertion that consumers “*will benefit*” from “*allowing sufficient revenue from legacy services to fund investment*” in fibre. Thus, a very strong and untested assumption is embedded within the motivation for what should be just one of several options to be compared. This further underlines the need for robust testing of assumptions, and the deficient nature of the analysis in the discussion document.

### 3.3 No consideration of alternatives

84. Given the opaque nature of the problem definition, one is forced to infer it from other parts of discussion document. Our inference is that the objective is mainly to provide Chorus with extra cash. We come to this view by considering the citations above from paragraphs 152 and 160 of the discussion document, and the proposed solution of copper-fibre price equalisation.
85. Clearly the perceived problem is not about extra financial support for UFB construction in general, because the solution only benefits Chorus and not the firms building the other 30% of the fibre network. All LFCs would gain an indirect benefit in the form of faster migration to fibre if the proposal involved fixing, rather than capping the copper price. But it does not. Indeed the discussion document notes (¶182) that “Chorus can set wholesale prices below the regulated price cap to match competition from fibre in those areas, if necessary to compete effectively with the LFCs”.
86. In summary, if the answer is copper-fibre price equalisation, we deduce that the question must have been: how can we give more cash to Chorus?
87. Setting aside for now the rather unprincipled nature of this as a public policy question, there are a number of alternatives solutions that should be considered. Most obviously, the status quo. While all private companies would *like* more cash, only firms in or

approaching financial distress actually *need* more cash. As discussed below Chorus has two unexplored avenues for addressing any financial issues it may have.

88. More generally, if Chorus is approaching financial distress, then it already has a range of options available to it, the most obvious of which is to raise further debt or equity. To the extent that the government considers Chorus' financial position a public policy issue, it is necessary to assess equity raising as an alternative option.
89. A further very obvious option would be to renegotiate the contract between the Crown and Chorus. Why has this option not been considered?

### **3.3.1 Chorus can solve its own financial problems**

90. As discussed above (section 3.3) a "between the lines" analysis of the discussion document suggests that the primary issue it seeks to address is Chorus's financial position. Analysis of Chorus' accounts in the context of its position in the New Zealand economy suggests that there is no need to allow Chorus to further tax end-users of copper-based services.
91. It should have been apparent from its inception that Chorus would need to raise additional equity. From the beginning, the scale of its investment commitment was so large relative to its earnings that cash flow financing was unrealistic, especially considering that
  - a. It was known that UBA prices would fall substantially when they were cost-based after a three year regulatory holiday; and
  - b. It was known that the UFB commitment involved early capital expenditure and deferred revenues with relatively modest uptake rates, not more than 40% of premises passed by 2020.
92. Bearing these known factors in mind, any revenue surprise caused by the Commerce Commission's draft determination on UFB pricing would have been minor, at least for well-informed investors. Share prices can easily be moved by ill-informed investors however.
93. It has been widely reported that build costs are higher than anticipated, and this could have a much larger unexpected impact on Chorus's financial position than the revenue-side issues addressed in the discussion document. However this needs to be seen in the context of an infrastructure company making a once-in-a-generation investment in assets that will give it a durable monopoly for many years to come.
94. Inspection of Chorus's accounts does not support the view that the firm is in financial distress. We note that both Moody's<sup>26</sup> and Standard and Poors<sup>27</sup> have maintained debt ratings comfortably within investment grade for Chorus since its inception. Moreover,

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<sup>26</sup> [https://www.moody.com/research/Moodys-confirms-Chorus-rating-Outlook-negative--PR\\_268707](https://www.moody.com/research/Moodys-confirms-Chorus-rating-Outlook-negative--PR_268707)

<sup>27</sup> <http://www.scoop.co.nz/stories/BU1212/S00098/sp-downplays-regulation-impact-on-chorus-credit-rating.htm>

the firm was able to raise another \$250m of debt five days before the release of the discussion document.<sup>28</sup>

95. It is of course possible that these agencies are awaiting the resolution of these copper-pricing issues. However at this point Chorus still has two unexplored avenues for strengthening its financial position: to raise new equity capital; and to cut or suspend dividends.
96. If the firm's debt was reduced by two grades, it would fall out of the investment grade category and trigger the automatic suspension of dividends. This is the inference from footnote 14 in Chorus' 2012 annual report which reads as follows.

*"The terms of the CFH Equity Securities do not prohibit payment of dividends on Chorus ordinary shares. However, provisions elsewhere in the agreements prohibit Chorus, without CFH's approval, paying any distributions on its ordinary shares during any period in which Chorus's credit rating is below investment grade."*

97. The dividend payments are particularly relevant to the issues at hand. In its 2013 accounts, Chorus provides for a distribution of \$95m of fully imputed shareholder dividends. When the revenue loss that that triggered this review is put into comparable (after tax) terms it amounts to \$115m. Thus, the firm could recoup most of its loss by suspending dividends, thereby clearly signalling itself as a growth stock.
98. In summary, it seems that the real questions over Chorus' finances are:
  - a. When will it commence a new capital raising, and how much will it seek?
  - b. When will it advise investors that current dividends are unsustainable and it should be viewed as a growth stock?

### **3.3.2 Alternative sources of funding**

99. If the Government is convinced that Chorus needs more cash and Chorus really cannot solve this problem itself, it is far from clear that what effectively amounts to a tax on copper consumers is the most efficient way of raising that cash.
100. Given that the demand for broadband is somewhat price sensitive, increasing the price of copper above cost will reduce welfare and GDP. It is not apparent that if the Government needed revenue for any general purpose, it would choose to tax copper broadband. Alternative sources of funds that could be less distortionary include:
  - General tax revenues;
  - Private borrowing by Chorus, underwritten by the Government; or
  - Re-tendering some or all of Chorus's UFB rollout obligations.

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<sup>28</sup> <http://tvnz.co.nz/business-news/chorus-gets-new-lender-push-debt-maturity-5525473>

None of these alternatives are considered the discussion paper.

### **3.3.3 Don't make copper worse, make fibre better**

101. If incentives of customers to migrate from copper to fibre are a problem, then the options that the discussion document proposes reflect a "stick" approach, making the copper service worse in order to make the fibre service seem more attractive.
102. Incentivising switching in this way will not create any welfare benefits, and in our view it is more likely to reduce broadband penetration overall, rather than encourage consumers to switch from copper to fibre.
103. To encourage switching from copper to fibre without reducing consumer welfare, a "carrot" is required. The way to do that is by improving the UFB service so that it is more attractive to consumers. This could include:
  - Improving speeds on the entry-level UFB service from the current 30 Mbps downstream and 10 Mbps upstream to something that is significantly better than what is possible with ADSL or VDSL, such as 100 Mbps in both directions.
  - Ensuring that there are no barriers to RSPs to bundling premium content (eg first-run movies and live sports) with UFB retail services.
  - Investigating competition issues in markets for international bandwidth, so that data caps on retail UFB services can be increased.
104. Any of these things would encourage consumers to switch from copper to fibre and would reflect genuine benefits for consumers, in contrast to the effects of an increase in the copper price.

## **3.4 No cost-benefit analysis**

105. As we have explained in section 2 above, all three options in the discussion document create clear detriments for broadband consumers, broadband uptake, development of internet applications, and productivity. In such a situation, we would expect a clear and thorough analysis of the benefits of the policy proposals relative to the detriments, to ensure that the net effect is expected to be positive.
106. However, the cost-benefit analysis in the discussion document is limited to one sentence (¶179):

"In the longer term there are benefits for end users arising from efficient network replacement as a result of the proposed approach that would offset any short-term price impacts."

It is very troubling that the Government would see fit to transfer hundreds of millions of dollars of value from broadband consumers to Chorus over a long period of time on the basis of this level of analysis.

107. The benefits of artificially inflating the prices of copper broadband identified in the discussion document appear to be (¶171-173):
1. Greater revenues for LFCs (especially Chorus), ensuring that these firms remain financially viable;
  2. Faster migration to fibre and earlier development of new online services and applications; and
  3. Greater certainty for investors in fibre.
108. It is not clear to us that any of these things are actually benefits. If Chorus and other LFCs are not financially viable as a result of the commercial deal that they entered into with the Government then the normal market process of restructuring and re-capitalisation can still lead to the UFB network being built. The assets that have already been built will not disappear, and a new deal can be reached – with Chorus, the other LFCs, and/or others – if it actually turns out that the existing deal is not sustainable.
109. As we have discussed in section 2.3 above, it is not clear that higher copper prices will lead to earlier development of new online services and applications. Under the most optimistic expectations, only 30% of New Zealand households will be using UFB by 2020. The pricing and usage of copper broadband will thus continue to have significant negative effects on the incentives to develop and use new online applications for quite some time, for the reasons discussed in section 2.3.
110. Furthermore, incentivising consumers to switch from copper to fibre by increasing the copper price while leaving the characteristics of the fibre service and the fibre price unchanged does not actually create any direct welfare benefits. It simply encourages some consumers on the margin of indifference between copper and fibre to switch to fibre by making the copper service relatively worse.
111. Any resulting uptake of fibre services is an illusory benefit – it simply reflects the fact that consumers are receiving lower net benefits from their copper service, as explained in section 3.3.3 above. Such switching also causes additional fibre installation costs to be incurred, including lead-ins and customer premises equipment.
112. Finally, it is not clear why certainty for fibre investors represents a net welfare gain. These investors entered deals with the Government that have specific risks and rewards. Changing the game *ex post* is good for the investors, but creates moral hazard and incentive problems as discussed in section 2.4 above. Thus intervening for the sake of creating investor certainty appears to advantage one particular group in society but in aggregate is a detriment rather than a benefit.



## 4 Analytical issues

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113. The analysis in the discussion document is flawed and inadequate in several important ways. In our view, the UFB network is not likely to be the modern equivalent asset (MEA) of the copper network, and in any case UFB prices might not reflect the costs of the fibre network that a regulator would allow. There are further flaws in the Government's analysis of risks faced by investors, what should be expected during the transition to fibre, and the factors affecting efficient migration from copper to fibre. The discussion document also fails to consider the status quo as a viable option.

### 4.1 Is the UFB network the MEA for the copper network?

114. Before addressing the question of the appropriate MEA for the copper network, it is worth noting that the Act does not refer to the MEA concept in the definitions of the pricing principles for UCLL and UBA. The discussion document takes as given that costing the MEA is the way that the Commerce Commission would determine a TSLRIC price for these services. While we agree that the MEA can be a useful construct for efficient pricing, it is not without problems when applied during the transition to new technologies, as we discuss in section 4.3 below.
115. The discussion document argues (§21) that the MEA of the copper network is a fibre-to-premises (FTTP) network, like the UFB network. Whether or not this is true essentially depends on the definition of the MEA.
116. There is no international consensus on the appropriate MEA for the copper network. The European Commission is currently considering this issue and its draft position is that the MEA of the copper network is a fibre-to-the-cabinet (FTTC) network, adjusted as appropriate for the pricing of copper access services:<sup>29</sup>

When estimating the cost of wholesale access services that are based entirely on copper, NRAs should adjust the cost calculated for the NGA network to reflect the less performant features of a copper network. For this purpose, the NRAs should consider an FttC network to be the modern efficient NGA network and should estimate the cost difference between an access product based on FttC and an access product based entirely on copper by making the relevant adjustments in the FttC engineering model, e.g. replacing the optical elements with efficiently priced copper elements, where appropriate.

117. The discussion document's assertion (annex C) that the EC recommended a full fibre network as the MEA is based on an earlier EC press release, and it appears that the EC has subsequently changed its mind on that issue.

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<sup>29</sup> Draft recommendation on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment, European Commission, 7 December 2012, available at <http://ec.europa.eu/digital-agenda/en/news/draft-commission-recommendation-consistent-non-discrimination-obligations-and-costing>.



118. In response to the EC's draft, the Body of European Regulators for Electronic Communications (BEREC) noted:<sup>30</sup>

Prescribing an FTTC network as the MEA for a copper network is neither future proof nor technologically neutral and may lead to NRAs using a model which does not reflect the NGA network being actually rolled out in their countries. A number of NRAs do not consider FTTC as the NGA technology that an efficient operator would choose to deploy today; which would be more likely to be an FTTH network. In addition, it seems an FTTC model may not be representative of what is actually being rolled-out (e.g. FTTH networks in Sweden, Finland, Lithuania, France). Furthermore, BEREC notes that an FTTC network may not be viable at all in some countries, and therefore a model based on such a network topology may not be defensible in national courts. In any case the NRAs need to also respect the principle of technological neutrality and ensure that they do not influence the choices of the operators. BEREC therefore invites the Commission to clarify in the text of the final Recommendation that NRAs would be able to adopt technologically neutral alternatives (to the proposed FTTC approach).

119. BEREC's position appears to be that country-specific factors are important, although in our view it is not clear how that would achieve the objective of technological neutrality across countries. The European Commission has not yet issued a final recommendation, but the draft position of specifying an FTTC network as the MEA is more consistent with technological neutrality.

120. In other sectors, the International Valuation Standards Council defines the MEA as:<sup>31</sup>

An asset which provides similar function and equivalent utility to the asset being valued, but which is of a current design and constructed or made using current materials and techniques.

and OfWat in the UK defines the MEA as:<sup>32</sup>

A structure similar to an existing structure and having the equivalent productive capacity, which could be built using modern materials, techniques and design.

These definitions describe an MEA that provides similar services to the existing infrastructure but using modern assets and design.

121. Both of the adjectives "modern" and "equivalent" are relevant. In respect of "modern" the test is whether the asset is already in use and provides better value for money than other options. An entirely novel technology does not qualify and neither does one that

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<sup>30</sup> Commission draft Recommendation on non-discrimination and costing methodologies: BEREC Opinion, 26 March 2013, available at

[http://berec.europa.eu/eng/document\\_register/subject\\_matter/berec/opinions/?doc=1244](http://berec.europa.eu/eng/document_register/subject_matter/berec/opinions/?doc=1244).

<sup>31</sup> See <http://www.ivsc.org/glossary>.

<sup>32</sup> See [http://www.ofwat.gov.uk/aboutofwat/gud\\_pro\\_ofwatglossary.pdf](http://www.ofwat.gov.uk/aboutofwat/gud_pro_ofwatglossary.pdf).

would raise the cost of service relative to other options. With this in mind, the following factors suggest that UFB is not the MEA of the existing copper network:

1. UFB is not a commercially driven investment, but a government initiated one; and
  2. The UFB network will take several years to complete and is explicitly recognised as being built ahead of demand.
122. This suggests that in a hypothetically competitive market (which the MEA concept is intended to mimic), the UFB network would not be built at the present time to replace the copper network. Thus there is doubt about whether the UFB network is the “modern” equivalent of the copper network, or in fact some future equivalent at some unknown point in time.
123. Regarding “equivalent” there are additional challenges. The fibre network clearly does not provide equivalent services. On one hand, it can offer far higher data transmission speeds. On the other, it cannot provide existing services such as a UCLL service, into which several firms have sunk asset-specific capital investment. Other ways in which UFB does not offer “equivalent” services include:
1. It is not a replacement network, but rather a partial duplication of the copper network;
  2. It has materially less extensive geographic reach; and
  3. Even within its footprint, market share in respect of premises passed is expected to be much lower than for copper.
124. Alternatively, if one looks far enough into the future, an FTTP network may be the MEA of copper in some areas and/or for some types of customer with high demand for bandwidth, but alternative technologies such as mobile and wireless may be more suitable in other areas. As noted in the submission by Telco2, they estimate that LTE is a suitable substitute for fixed-line broadband for at least 50% of households in New Zealand.<sup>33</sup>
125. Taking all of the above into consideration, in our view the unadjusted costs arising from a FTTP network in general, or the UFB network in particular, is not the cost of the MEA of the copper network in New Zealand. The grounds for pegging copper prices to UFB prices are therefore very weak.

## **4.2 Do UFB prices reflect costs of the fibre network?**

126. Even if it is the case that the UFB network is the MEA of the copper network, we have doubts about the argument in the discussion document (¶21) that “we know the cost of

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<sup>33</sup> *Fixed Mobile Substitution Overview for InternetNZ, TUANZ, and Consumer NZ*, Telco2, available at <http://www.comcom.govt.nz/regulated-industries/telecommunications/standard-terms-determinations/unbundled-bitstream-access-service/section-30r-reviews-of-uba-std/uba-benchmarking-review/>.

laying a new fibre network and providing wholesale services because the cost was discovered through the tendering process for the UFB”.

127. While the UFB prices were determined via competitive tenders, in our view it is likely that these prices will exceed those that would be set by a regulator using a TSLRIC model for the copper network, even if an FTTP network is assumed to be the MEA. This is because:
- The tender process was a type of auction, with competitors bidding lower UFB prices more likely to win the tender. In this type of auction, the lowest bidder will win, but they will only need to bid slightly less than the second-lowest bidder’s expected cost. There is therefore likely to be a margin between the winning bid and the actual expected cost of building the UFB network.
  - It is a basic principle of auction theory that the difference between the winning bid and the winner’s true valuation (or expected build cost, in this case) depends on the number of bidders.<sup>34</sup> In each of the UFB areas, there were only two bidders – the Canadian and Chinese interests did not proceed to the negotiation stage. This leads us to expect a relatively large differential between the winning bid price and the expected cost of the winning bidder.
128. Furthermore, private investors will usually seek higher returns than a regulated monopoly should receive. While the Government’s interest free loans will reduce the cost of capital for fibre builders and thus may have reduced the tender prices, there is no evidence that the rates of return implicit in the UFB contracts are consistent with regulatory norms.
129. It is also relevant to note that a TSLRIC cost modelling exercise, such as would be undertaken for UCLL or UBA under the FPP, would need to integrate the theoretical MEA concept with the reality of network design. To give just one such example, trenching costs will depend on trench lengths, the extent that these are shared between customers and between networks, and the type of terrain. To the extent that these factors differ between UFB and the copper network, fibre access prices will not reflect the costs associated with providing the UCLL and UBA services on a TSLRIC basis.
130. Related to this is the fact that the geographic coverage of the UFB and copper networks differ, with the UFB network predominantly being build in urban areas, while UCLL and UBA are available outside that area. Greater customer densities in urban areas may reduce costs in these areas and hence reduce the difference in costs between fibre and copper. However trenching and other civil works costs are likely to be higher in urban areas, so the overall effect of the difference in geographic coverage is unclear.
131. All of this creates significant doubt about whether the UFB contract prices are a good reflection of the costs of a FTTP MEA for the copper network.

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<sup>34</sup> See for example chapter two of Vijay Krishna (2002), *Auction Theory*, Academic Press.

### **4.3 Transition to new technologies in competitive markets**

132. The use of the MEA to set regulated prices for an existing network is based on a desire to mimic outcomes in contestable markets. As noted in the discussion document at paragraph 21, in a contestable market, if a new technology comes along, a firm using the old technology cannot charge a price above the costs of a supplier using the new technology. In the cases where technological progress takes the form of cost-reducing innovation, the MEA concept disciplines the regulated firm and ensures that consumers benefit from technological progress.
133. This paradigm breaks down when innovation leads to new technologies like fibre broadband that have higher cost but provide better features and quality to consumers. In such a market, the new technology competes on the basis of higher quality and better features. Even if it is more expensive than the older one, the new technology can compete on the basis of the greater value it provides to consumers. There are many examples of such transitions in competitive markets, such as the transition in music reproduction technology from records to cassette tapes to CDs to digital downloads.
134. Importantly, the emergence of the new technology does not allow sellers of the old technology to raise their prices. When smartphones emerged, makers of standard mobile phones were not able to increase the prices for their handsets on the basis that smartphones were the “modern equivalent” of their product. Instead, competition forces sellers of the old technology to lower their prices to compete with the new one, and/or to innovate and make technological improvements themselves.
135. The emergence of a new technology in a competitive or contestable market therefore never makes consumers worse off, not even temporarily. In contrast, the Government is proposing to do exactly that – to make consumers of existing broadband technology worse off in order to support a new technology that does not yet appear to offer significant benefits to most consumers relative to the old one. That is not how contestable markets work.
136. The normal regulatory approach when assets are revalued upwards due to these kinds of effects is to treat such revaluations as income and establish some mechanism for sharing the gains with consumers.
137. In contrast, the Government is appealing to the theory of contestable markets, without acknowledging how technological progress really works in such markets, and without sharing benefits of the revaluation of the copper network with consumers. The statements in paragraph 21 of the discussion document that the proposed approach is “consistent with existing principles and is theoretically sound” and is “widely accepted international practice” are not correct.

### **4.4 Is there too much uncertainty and should we care?**

138. The discussion document argues (¶173) that it may be several years until prices for UBA and UCLL are finalised and “this will result in on-going uncertainty for the industry, investors and consumers at a time when we need to be making best use of new fast broadband technologies”.

139. As noted previously, the UFB roll-out will not be completed until 2019 and by 2020 at most 30% of households, and probably significantly less, will be using the UFB network. This gives plenty of time to set copper prices without uncertainty about these prices impeding the take-up of fibre in any way. As a practical matter, very few people will have the ability to “make best use of new fast broadband technologies” for at least the next five years. We therefore do not accept that uncertainty about copper prices is a significant issue that needs to be resolved immediately.
140. The majority of people affected by this uncertainty are Chorus’s shareholders, as a direct result of the contract that Chorus entered into with the Government. The shareholders of other LFCs are affected to a much lesser extent, given that they do not supply UBA and UCLL services, and thus only feel the impact of copper prices if these affect the rate at which consumers switch from copper to fibre.
141. For the reasons discussed in section 2.4 above, we do not think that the Government should care very much, if at all, about the welfare of private investors who have willingly made a risky investment. In any case, the analysis in the discussion document of the impacts on Chorus’s shareholders is incomplete, and does not consider the effects of the full package of changes to the Act that were made in 2011 to support the Government’s UFB programme.
142. In particular, the UFB deals were accompanied by a package of reforms that included measures aimed at reducing risks to LFC investors, namely freezing the UBA price at its previous retail-minus level and geographic averaging of the UCLL price that has the effect of increasing the copper price in urban areas where the UFB network is predominantly being built. The same reforms created the review of the UBA price that the Commerce Commission is currently undertaking.<sup>35</sup>
143. Prior to the 2011 changes, the IPP and FPP processes were established in the original 2001 legislation. The IPP process in particular has been used several times during the past decade to set access prices for fixed and mobile networks, using international benchmarking. While there have been some changes to the Commission’s benchmarking methodology over this time, the basic approach has been relatively predictable.
144. The risks associated with UFB investment were thus well known. The inevitability of a fall in the UBA price from the previous retail-minus level, and the risks associated with the size of that fall, would have been clear to Chorus and to informed shareholders. Furthermore, the three-year freeze of the UBA price at a level significantly in excess of cost provided a generous buffer against any price reduction.
145. Given this background, the claims in the discussion document at paragraphs 168 and 169 that outcomes since the 2011 changes to the Act are completely different from what was expected are highly surprising. We find it difficult to believe that a sophisticated business such as Chorus with a large team of regulatory economists, consultants and

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<sup>35</sup> It is also noteworthy that in February 2013, Chorus and others applied to the Commission to make a pricing determination for UCLL under the FPP.

business analysts was not able to predict with at least some probability that copper prices (and the UBA price in particular) could fall significantly.

146. In particular, it would have been prudent and reasonable for Chorus to undertake international benchmarking of UBA prices and examination of international trends to predict the likely range of outcomes from the Commission's benchmarking. Normal analysis for a business case includes a "worst case" scenario with some probability, and this should have been factored into Chorus's analysis. Furthermore, it would have been possible at relatively low cost for Chorus to commission consultants to give it a reasonable estimate of where UCLL prices would end up under the FPP.
147. If Chorus did not do these things then it made a mistake and shareholders rather than consumers should pay for that. If Chorus did do these things then all that has happened is that a relatively bad outcome has occurred for its shareholders, but that is always a possibility with any risky investment, and again consumers should not have to compensate shareholders for an investment that performs below expectations. No such compensation occurs in competitive markets.

#### **4.5 Efficient migration to fibre**

148. We understand from comments made by MBIE officials at forums convened by Internet New Zealand that we attended that the Government's primary concern is funding and completing the contracted build of the UFB network. Given that investment obligations are specified in contracts with LFCs, the Government's perceived problem therefore relates to the *ability* of LFCs to invest, rather than their *incentive* to do so.
149. Ability to invest is a financing issue. Revenues from the UFB network will be small for some time, due to the fact that it will be five or six years until the network is widely available, and the fact that consumers are expected to take up the new technology gradually. This means that current incentives for consumers to switch from copper to fibre are not very important in determining the ability of LFCs to fund their contracted network build obligations.
150. In simple terms, the incentives of most consumers to switch from copper to fibre are irrelevant for the next few years, as most of them will not have such a choice. None of this is unique to UFB – most major infrastructure investments involve building ahead of demand and thus construction must be financed in some way.
151. Nevertheless, the discussion document treats customer migration incentives as an important issue, analysing it at several points (eg ¶¶168, 172, 185-192). The discussion document concludes (¶21) that equivalence between fibre and copper prices will ensure that there is no financial disincentive for consumers to choose fibre over copper. While that is true, it overlooks the fact that a customer's decision to switch from copper to fibre is more than a financial one, and whether or not increasing the copper price leads to efficient migration is not a straightforward question.

#### 4.5.1 Migration incentives

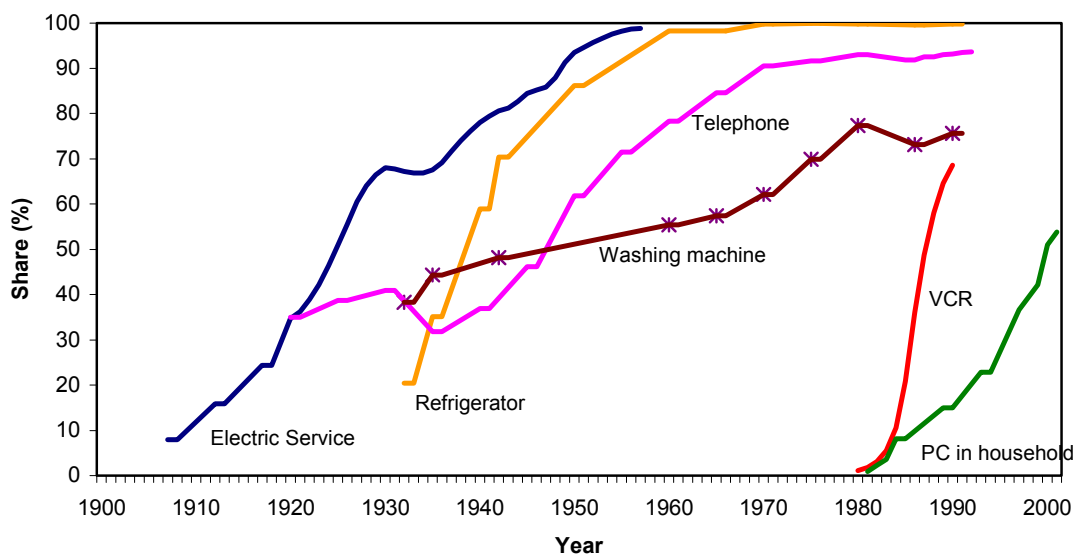
152. A customer will choose to switch from copper to fibre if the net benefit that they receive from fibre exceeds the net benefit from copper, ie if:

$$U_{fibre} - p_{fibre} > U_{copper} - p_{copper}$$

where  $U_{fibre}$  and  $U_{copper}$  are the gross utility that the customer gets from fibre and copper, and  $p_{fibre}$  and  $p_{copper}$  are the prices.

153. Therefore, the price of copper is only one of four factors that affects the switching decision. Increasing the utility from fibre or reducing the fibre price can have similar effects on consumer incentives to switch as increasing the copper price.
154. Figure 3 illustrates this point more generally, showing diffusion rates for various consumer products in the United States over the past century. The rate of diffusion appears to depend partly on the availability of substitutes, ie the difference in utility available from new technologies compared to existing ones. For example, the rate of uptake of refrigerators and VCRs was very rapid, as good substitutes for these products do not exist. In contrast, washing machines diffused more slowly, as it is primarily a labour-saving technology with existing substitutes.

Figure 3 Diffusion rates in the United States for selected consumer products.

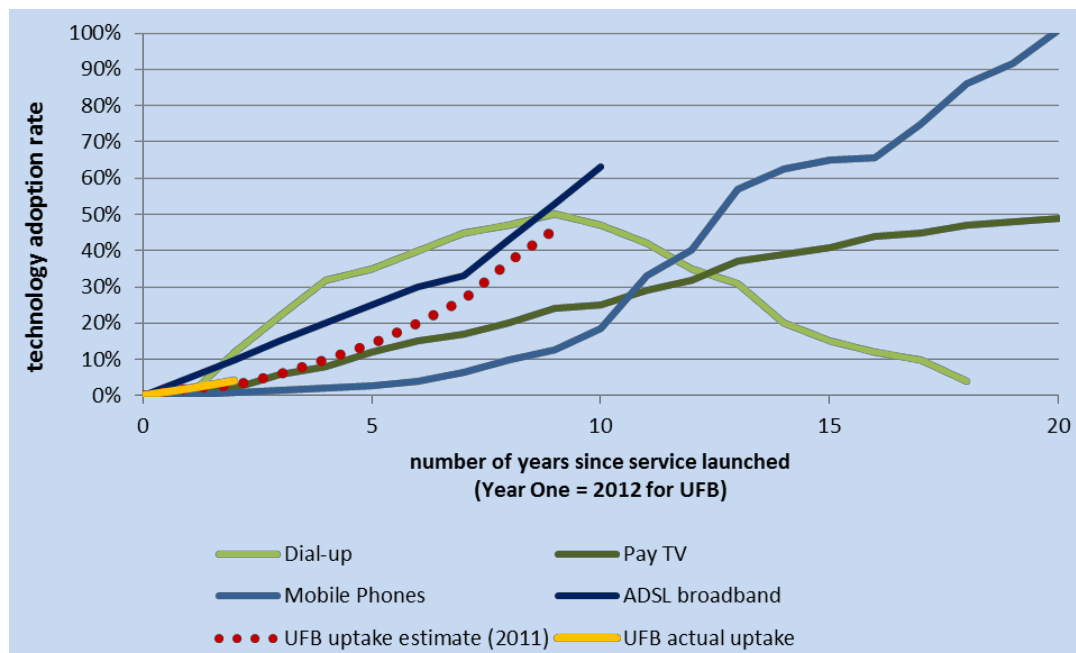


Source: Bronwyn Hall & Beethika Khan, *Adoption of New Technology*, New Economy Handbook, November 2002.

155. Similarly, Figure 4 shows diffusion rates of communications technologies in New Zealand. It is notable that dial-up internet diffused faster than ADSL broadband, which in turn is faster than the expected rate of diffusion of UFB. Again this points to the availability of good substitutes. There were few good substitutes for dial-up, but dial-up was a substitute for ADSL (especially initially when ADSL speeds were low), and ADSL is a good substitute for UFB.



Figure 4 Technology uptake rates in New Zealand.



Source: MBIE, *Broadband Deployment Update*, quarterly report April-June 2013.

156. In most circumstances, consumers will make efficient switching decisions if they face prices that reflect costs. With cost-based prices, a consumer will choose to switch from copper to fibre if their net gain in welfare exceeds the difference in opportunity cost. Such decisions will lead to an allocation of scarce resources that maximises total welfare.
157. Departing from cost-based pricing, for example by setting the price of copper equal to the price of fibre, will lead to inefficient migration decisions unless there are some other factors at play that justify price adjustments.

#### 4.5.2 Network externalities

158. One possible reason to depart from cost-based prices is externalities, namely network effects. If the value of a network increases with the number of people that use it, people will not take account of the effect of their decision to join the network on the welfare of others. This will lead to an inefficiently small network.
159. Broadband is a communications technology, and as such it is likely that the value of a broadband service increases with the number of other people that use it. However, in our view such effects largely relate to the usage of broadband overall, and not to the use of a particular access technology such as copper or fibre. This is because the interconnected nature of the internet means that users of copper can communicate with users of fibre and vice versa.
160. In any case, the efficient response to the existence of network effects for fibre would be to reduce the fibre price below cost to reflect the positive externality (ie a subsidy), rather than to increase the price of copper above cost (ie a tax). This is because increasing the price of copper would encourage users to switch from copper to fibre but would also reduce broadband penetration overall, leading to a reduction in the network



size and a loss of positive network effects. It could also be argued that the Government's interest free loans to LFCs are already equivalent to a subsidy for fibre, and thus a further correction for network effects may not be justified.

#### **4.5.3 Productive efficiency**

161. Another possible reason to adjust prices is to prevent inefficient duplication of network costs, ie to promote productive efficiency. If fibre and copper networks are both available in the same area, if all customers switch to fibre then the copper network in that area could be decommissioned, saving associated operating and maintenance costs. However, in considering whether productive efficiency justifies increasing the price of copper, it is necessary to compare any cost savings with the detriments of doing so.
162. In areas where Chorus is building the UFB network, it is obvious that Chorus will not compete with itself, and so there will not be a competition benefit from having two networks. However, the prices of copper services still impose a useful constraint on fibre, given that the two services are close substitutes. In the absence of direct regulation of fibre, this constraint plays a useful role in delivering benefits to end-users.
163. In areas where other LFCs are building the UFB network, there is potential infrastructure-based competition between copper and fibre, which would benefit consumers. While the Government's proposals are copper price caps and not price floors, it appears that the options may reduce competition in these areas anyway, as Chorus has publically stated that it is "not planning to" undercut its rivals in areas where it is not building the UFB network.<sup>36</sup>
164. Overall it seems clear that any incentive for productive efficiency created by increasing the price of copper comes at the cost of weaker constraints on fibre, as well as the direct loss of consumer welfare experienced by copper broadband customers, and the resulting costs in terms of productivity and economic growth. The discussion document does not evaluate these trade-offs to determine whether setting the price of copper equal to fibre achieves an efficient outcome.
165. Furthermore, as noted above, the Government is already effectively subsidising fibre, and it is not clear whether a further incentive to achieve productive efficiency by increasing the copper price is justified.

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<sup>36</sup> Chorus 'Won't Undercut Fibre Rivals', Tim Hunter, Fairfax News, 23 August 2013, <http://www.stuff.co.nz/business/industries/9078750/Chorus-Won-t-Undercut-Fibre-Rivals>.

## Appendix: Size of the transfers to Chorus

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166. As discussed in section 2.1, the effect of the discussion document's proposal is to maintain the copper price at a higher level than it otherwise would be until 2020, in addition to the UBA price freeze legislated in 2011.
167. Table 1 shows our estimates of the size of the transfer to Chorus. We make the following assumptions, which are conservative in the sense of favouring a lower transfer:
- The number of UFB lines increases linearly from 10,000 in 2013 to 30% of total broadband connections in 2020.
  - No further growth in the number of copper broadband lines beyond the level reported in the Commerce Commission's 2012 telecommunications monitoring report (1.24 million), with the number of copper lines falling as customers switch to the UFB network.
  - 1 million UBA lines in 2012, with the 2012 ratio of UBA lines to total copper lines also applying in other years.
  - Absent government intervention, the Commerce Commission would set the UBA price at the Swedish benchmark (\$10.42), which is higher than the median of its benchmarking set.
  - The Government's intervention maintains the total copper price at the current level (\$44.98) until the end of 2015, after which the price will revert to the low end fibre price. That price will be \$39.50 in 2016, and will rise \$1 per year up to \$42.50.
  - We ignore effects on the UCLL price, which will be higher under two of the options in the discussion document, and the effects of geographic re-averaging of the UCLL price in the 2011 reforms. Both of these omissions mean that we underestimate the size of the transfer in Chorus's favour.
168. Overall we estimate that the 2011 law changes transferred \$386 million to Chorus, and the discussion document's proposals will transfer a further \$588 million.

Table 1 Estimation of the size of the transfers to Chorus.

<b>Year</b>	<b>Estimated UFB lines</b>	<b>Estimated total copper lines</b>	<b>Estimated UBA lines</b>	<b>Total copper price with govt intervention</b>	<b>Copper price differential per line per month</b>	<b>Total transfer (\$m)</b>
2011	0	1,140,000	919,355	\$44.98	\$11.04	122
2012	0	1,240,000	1,000,000	\$44.98	\$11.04	132
2013	10,000	1,230,000	991,935	\$44.98	\$11.04	131
<b>Total transfer created by 2011 UBA price freeze:</b>						<b>386</b>
2014	61,714	1,178,286	950,230	\$44.98	\$11.04	126
2015	113,429	1,126,571	908,525	\$44.98	\$11.04	120
2016	165,143	1,074,857	866,820	\$39.50	\$5.56	58
2017	216,857	1,023,143	825,115	\$40.50	\$6.56	65
2018	268,571	971,429	783,410	\$41.50	\$7.56	71
2019	320,286	919,714	741,705	\$42.50	\$8.56	76
2020	372,000	868,000	700,000	\$42.50	\$8.56	72
<b>Total transfer created by the discussion document proposals:</b>						<b>588</b>