VODAFONE NEW ZEALAND LIMITED

Cross Submission to the New Zealand Commerce Commission

on

CEG's submission on welfare effects of UCLL and UBA uplift

Public

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Table of Contents

Executive Summary

i) Vodafone welcomes the opportunity to comment on CEG's Uplift submission.

ii) CEG has prepared an assessment of welfare effects arising from uncertain incentives to invest generated by uncertainty estimating the WACC for UCLL and UBA services. The assessment is based on a model developed by Frontier Economics (the Frontier-Dobbs model). CEG's application of this model is presented as justification for an uplift in the WACC between the 56th and the 95th percentile.

iii) The Commission has previously rejected this model and should do so again. The Frontier-Dobbs model assesses the impact of an uplift on the regulated entity's potential future investments. This framework is simply not relevant in the context of the copper pricing review, where Chorus' fibre investment is a committed contractual obligation (and cannot be deferred), and where Chorus' UFB contracts include restrictions on copper network investment.[1]

iv) We disagree with CEG's claim that a total welfare standard would better serve consumer interests. CEG's argument relies on the warning that any firm failing to cover costs of production will exit the market, and will deploy its capital elsewhere. This statement makes no sense in a *TSLRIC* pricing review context; a cost calculation of *total service* that includes a mark-up for common costs.

v) CEG's application of the Frontier-Dobbs model is also flawed. Specifically, demand for fibre is significantly overstated, statements on demand elasticities contain inconsistencies, and the stated maximum willingness to pay contains simple errors of currency conversion that materially affect the model output. Further, CEG neglects to consider alternatives to both copper and fibre such as cable and Fixed Wireless Access. The cumulative impact of these shortcomings means that the results presented cannot be used by the Commission to balance welfare losses and gains.

vi) CEG presents 'evidence' to demonstrate that a copper price uplift will lead to increased demand for fibre services, which is claimed to be welfare enhancing, even using the consumer welfare standard. Such claims rely on the premise that higher UCLL and UBA prices will drive faster migration to fibre. We do not agree that such a cross-market effect can be so confidently accepted: experience from other countries indicates that relatively high DSL prices are not a key driver for fibre uptake.

[1] Network Infrastructure Project Agreement between Telecom Corporation of New Zealand Limited and Crown Fibre Holdings Limited (24 May 2011), Clause 4(c) in Schedule 2: "*[Chorus] undertakes to prioritise new investment in fibre access and uptake and to minimise ongoing investment in copper access assets in all future business plans.*"

A Introduction

A1.1 Vodafone welcomes the opportunity to comment on CEG's Submission for Chorus on the welfare effects of a UCLL and UBA uplift (**CEG Uplift Submission**).[2]

A1.2 We have provided a separate submission on uplifts contained in the Commission's *Agenda and topics for the conference on the UCLL and UBA Pricing Reviews* dated 2 April 2015.

A2 Independent expert reports

A2.1 This submission should be read along with the expert report prepared by Network Strategies: Cross Submission responding to CEG's Uplift Submission (**NWS Uplift CEG Cross Submission**).[3]

A3 Confidentiality

A3.1 This submission does not contain confidential information.

[2] CEG, *Welfare effects of UCLL and UBA uplift,* March 2015.

[3] Network Strategies, *Examining welfare effects of UCLL and UBA uplift. A review of the CEG submission dated March 2015*, 10 May 2015.

B The Frontier-Dobbs model

B1 The Commission was correct to previously reject this model

B1.1 The Commission's draft decision on the cost of capital appropriate for the UCLL and UBA pricing reviews placed "*little weight on Professor Dobbs'* [2011] *model because it does not address the risk of misestimating the WACC (and instead addresses the risk created by fixing the allowed WACC over the regulatory period)*"[4] We agree that the Commission was correct in its interpretation.

B1.2 We echo NWS's warning that Professor Dobbs himself cautioned that the model results were indicative at best: "*in my opinion, it is unclear how much quantitative significance should be placed on the model predictions.*"[5]

B1.3 When setting the WACC for EDBs and gas pipelines, the Commission found the Frontier-Dobbs model:

(a) addresses the risk of fixing the WACC rather than the risk of mis-estimation;

(b) focusses on investment in new services, rather than maintenance of the existing network;

(c) does not adequately accommodate the 'long term interests of consumers' objective and is likely to over-state the influence of any WACC uplift; and

(d) is highly sensitive to input parameters,

and so decided not to rely on this model.

B1.4 We suggest the same caution should be applied in this regulatory proceeding.

Recommendation 1	**Consistent with its WACC-setting approach for EDBs and Gas pipelines, the Commission should not rely on the Frontier –Dobbs model.**

B2 The Frontier-Dobbs model is not relevant to the copper pricing review

B2.1 Dobbs' original model considers the appropriate allowed rate of return on investment in circumstances where the regulated entity has a degree of discretion regarding future investments, including the potential to defer.

B2.2 Dobbs original model calculated allowed rates of return for each of three categories of investment: existing (legacy) services; new services that *will* be deployed (non-deferrable); and potential but not definite new services (deferrable services). Professor Dobbs calculates total welfare is maximised if:

(a) Legacy services: allowed rate of return below the median WACC (45%).

[4] Commerce Commission (2014), Cost of capital for the UCLL and UBA pricing reviews, Draft decision, 2 December 2014, paragraph 226.

[5] *ibid.*, paragraph 4. See NWS Uplift Cross Submission s 2.1.

(b) Non-deferrable and deferrable services: allowed rate of return above the median WACC.

B2.3 CEG reflect Professor Dobbs' findings:

(a) Legacy services: allowed rate of return below the median WACC.

(b) Non-deferrable and deferrable services: allowed rate of return above the median WACC (at 99%).

B2.4 However as highlighted by NWS: "*CEG argues that the same uplift should be applied to sunk investment as to new investment, apparently since today's sunk investments were previously new investments.*"[6]

B2.5 Thus, despite the focus of Dobbs' original model being on regulated services, and the model offering an allowed rate of return for all regulated services, CEG are merging the distinct categories of sunk and new investment into one 'investment' category, and so including Chorus' UFB build.

Recommendation 2	**Reject CEG's attempt to merge the clearly distinct categories of sunk and new investment into one 'investment' category.**

B2.6 NWS also highlight that Dobbs' model is only applicable if there is a real possibility a regulated entity can defer or decline investment. This is obviously not the case for Chorus' UFB contract with the Crown.

B2.7 We thus highlight NWS's concern:[7]

> *In the context of the UCLL / UBA pricing review the Dobbs model can therefore only be relevant to existing sunk copper investment and new copper investment. The Dobbs construct cannot apply to fibre pricing in New Zealand as fibre prices have been set in commercial contracts.*

Recommendation 3	**Reject CEG's assertion that UFB investments can be deferred.**

B2.8 CEG suggest four other forms of new investment that might be incentivised via a WACC uplift. The first three (rural broadband outside UFB and RBI, future UFB and non-UFB high-speed broadband) are irrelevant as they would not be subject to price regulation under the current New Zealand regulatory framework. NWS also caution:[8]

> *Even if the Commission considers such opportunities relevant in a wider context (for example, in the context of dynamic efficiency) then it should be noted that opportunities for other new investment, either non-UFB or through UFB / RBI extensions, appear limited.*

Recommendation 4	**Reject CEG's assertion that rural broadband, future UFB and non-UFB high-speed broadband are relevant to a WACC uplift.**

B2.9 The fourth category, 'investment to enhance service quality and network capacity on the existing network', is potentially relevant. However due to the government-subsidised UFB deployment,

[6] NWS Uplift CEG Cross Submission, s 2.2.

[7] NWS Uplift CEG Cross Submission, s 2.2.

[8] NWS Uplift CEG Cross Submission, s 2.2. See also s 2.3.

"*very limited new investment is possible in the existing copper network. In fact this type of investment should only occur in LFC areas while in its own UFB areas Chorus is committed to encouraging fibre uptake with limited avenues for copper investment.*"[9]

Recommendation 5	Recognise that Chorus' faces contractual limitations on its investments in the legacy copper network and so reject CEG's assertion that delays to investments on the legacy copper network is relevant to the WACC uplift.

B2.10 Contrary to CEG's statement, the Frontier-Dobbs model is not a 'good fit' for the Commission's determination on wholesale copper access prices.

B2.11 We do not agree with CEG's claim that a total welfare standard would better serve consumer interests. The argument is supported by the warning that any firm failing to cover costs of production will exit the market, thus deploying its capital elsewhere. This statement does not make sense in the context of a *TSLRIC* pricing review: a cost calculation of *total service* that includes a mark-up for common costs.

Recommendation 6	Reject CEG's assertion that by using a consumer welfare standard, the Commission risks firms not covering production costs in a TSLRIC context.

B3 CEG's application of the Frontier-Dobbs model ignores Professor Dobbs' own concerns

B3.1 We share NWS's concerns regarding CEG's claim that the Frontier-Dobbs model was endorsed by Dobbs himself as '*a reasonably faithful application and extension*' of his original model, and in particular highlight the concerns raised by Professor Dobbs:

(a) The main concern was the likelihood that welfare losses would be significantly exaggerated where new investment does not occur (a finding consistent across consumer or total welfare objectives) which as a consequence exaggerates the extent of uplift 'predicted' by the model.

(b) Furthermore, the model's sensitivity to the weight placed on consumer surplus compared to producer surplus; and

(c) Lastly, the appropriateness of the model due to sources of uncertainty affecting investment that are explicitly ignored in the model, and the various exogenous mechanisms that regulators can use to influence reliability and investment.

B3.2 While Frontier was aware of Professor Dobbs' concerns and carried out some modifications and sensitivity testing[10], full treatment of these concerns was not feasible in the time available to the consultants. We understand that a revised version of the Frontier-Dobbs model was not released.

B3.3 CEG does appear to have made modifications to the model to reflect fixed line telecommunications markets, however these appear limited to different functional forms for

[9] NWS Uplift CEG Cross Submission, s 2.2.

[10] Frontier Economics (2014), *A submission on Prof Ian Dobbs' comments on our implementation of his loss function model*, September 2014.

demand, elasticities and maximum willingness to pay. It appears Professor Dobbs' concerns may not have been completely addressed even in CEG's application of the revised Frontier-Dobbs' model.

Recommendation 7	Recognise that Dobbs' own concerns regarding the application of his model have not been fully addressed.

B4 CEG's model assumptions are flawed

CEG significantly overstates the proportion of total demand that is demand for new services

B4.1 Dobbs' original model based demand for the new service on the proportion of deferrable investment to total investment (assumed between 5% and 30%). The Frontier version of Dobbs' original model assumed 1% of demand served by existing investment was for new investment.

B4.2 In contrast, CEG assume demand for new services should equal 75% of total demand, as this reflects future demand for UFB services. This cannot be correct - as discussed above:

(a) investment incentives for UFB are irrelevant as deployment is contractually agreed, and so UFB deployment incentives are irrelevant to the Commission's copper pricing determination; and

(b) only incentives to enhance the existing copper network should be considered.

B4.3 NWS have applied the logic used by Frontier to identify the proportion of demand served by new investment (difficult given retail services are provided over a combination of legacy and new infrastructure) to calculate an approximate $61 million of new investment for Chorus. As a proportion of the existing (sunk) copper network this investment is approximately 3.2%. This is substantially lower than the 75% claimed by CEG.

B4.4 CEG also point to future UFB and RBI extensions. Even if we assume a 70% probability that Chorus will win this funding, the additional fibre investment represents 10-13.5% of Chorus' existing copper network. So again substantially lower than the 75% claimed by CEG.

B4.5 While we retain our view that the correct application of the Dobbs model would not include investment that is not regulated, if CEG is to argue that the Commission consider incentives on new investment, the relevant proportion must lie between 3.2 - 13.5%.

Recommendation 8	Disregard CEG's calculation that demand for new services should equal 75% of total demand.

Demand elasticity: CEG struggles to differentiate the demand curve for legacy copper services from the demand curve for new fibre services

B4.6 CEG make a number of statements concerning demand elasticity that are not clear and not obviously consistent. It isn't clear whether CEG support demand elasticity for the legacy copper service as -0.43 or -0.95.

B4.7 Further, while demand for ordinary telephone services is described as inelastic, these appear to be included with new fibre services for which the elasticity is less certain: CEG is not clearly differentiating the demand curve for legacy copper services from the demand curve for new fibre services.[11] However in its modelling, CEG attributed a more elastic demand to new fibre services than to legacy copper services, potentially to address Dobbs' concerns on cross elasticity between copper and fibre. CEG's 'fix' does not address Dobbs' concerns.[12]

CEG's estimate of maximum willingness to pay contains errors

B4.8 Estimates of maximum willingness to pay are used in the Frontier-Dobbs model to truncate iso-elastic demand curves. Assumptions on maximum willingness to pay have a material impact on the model results.

B4.9 NWS have reproduced CEG's estimate of New Zealanders' maximum willingness to pay and identified an error: the $523.01 maximum willingness to pay is in fact in US dollars (not NZ dollars as implied by CEG[13]) and so CEG's statement that New Zealanders' maximum willingness to pay is an overestimate.

B4.10 A further error relates to CEG's use of year-end subscriber numbers, which again inflates the willingness to pay calculation. Average annual numbers would present a more accurate figure.

B4.11 Linear demand is an alternative approach to iso-elastic demand curves, which CEG considers and then rejects as the resulting $127.50 maximum willingness to pay is 'unrealistically low'.

B4.12 We disagree with CEG's view that $127.50 is unrealistically low. The Commission's own survey evidence is relevant here:[14]

> *A Commerce Commission survey on New Zealand consumer willingness to pay for a high speed broadband service found that 40% of consumers (640,000 households) were willing to pay up to $5 extra per month for the service, 37% said that they were willing to pay between $5 and $10 extra per month and only 4% said that they were willing to pay more than $20 extra per month . Thus a maximum willingness to pay of $127.50 per month may be entirely feasible in the New Zealand context or indeed may be a little high.*

B4.13 We echo NWS's view that CEG may be completely wrong regarding New Zealanders' willingness to pay profiles, and suggest that $127.50 may even be too high.

Recommendation 9	**Recognise that CEG's estimate of maximum willingness to pay contains errors that significantly impact on the model's final output.**

Demand growth: alternatives to fibre are omitted

B4.14 Potential demand growth is set at 0% overall. While fixed to mobile substitution is considered, CEG neglect to consider migration between copper and other services, such as cable.

[11] CEG Uplift Submission at paragraphs 34, 67 and 68.

[12] NWS Uplift Cross Submission, s 2.4.

[13] CEG Uplift Submission at paragraph 71.

[14] NWS Uplift Cross Submission, s 2.3.

Current prices

B4.15 CEG models wholesale prices as per the Commission's December draft determination, assumes the same input prices apply to new investments, assumes $85 per line per month for both legacy and new services and assumes full pass through of wholesale prices to the retail level.

B4.16 Attributing copper access prices to 'new investments', without considering the nature of those new investments, is imprecise. It is feasible that if new investments are focussed on lower cost technology, input prices could decrease.

B4.17 CEG's assumed retail plan price is the un-weighted average of DSL plans offered by Spark and Vodafone, and ignores potentially lower cost plans available from other RSPs, including the substantially lower cost 'naked' offerings.

Recommendation 10	**Recognise that CEG's assumed retail price is not fully reflective of choices available to consumers: the retail plan price considered should be a weighted average of all providers.**

Other flaws

B4.18 NWS report further flaws in CEG's modelling:

(a) the standard deviation used is 1.11% which could not be replicated by NWS, instead NWS arrived at a lower figure (1.08%); and

(b) CEG's 3% annual depreciation is stated to be based on 34 or 36 years. Replicating this calculation NWS arrive at 2.86% (35 years) or 2.94% (34 years) - so a lower figure.

B5 CEG's results cannot be relied upon

B5.1 The Dobbs model was not intended for assessment of uplifts to a regulated price by considering investment incentives in non-regulated markets.

B5.2 Nonetheless, even were the model appropriate for this pricing review, material changes would have to be made to the Frontier-Dobbs model Many of CEG's key assumptions - including demand, demand elasticities and willingness to pay - are either inappropriate or incorrect.

B5.3 Thus CEG's presentation of results cannot be used by the Commission to balance welfare losses and gains.

Recommendation 11	Recognise that Dobbs' model was not intended to assess uplifts to a price in a regulated market with respect to impacts on investments in non-regulated markets.

C The Oxera model

C1.1 CEG presents the welfare effects of an increase in the copper price of various uplifts in the WACC in its Table 3.[15]

C1.2 We share NWS' concerns:[16]

> *We have been unable to reproduce these results, however we note that consumer surplus is critically dependent upon two parameters: the maximum willingness to pay and the elasticity. This was also remarked upon by Professor Dobbs who also commented upon the importance of having a realistic maximum willingness to pay (or "choke price").*
>
> [...] *CEG's assumption of $523.01 for the maximum willingness to pay appears to be greatly over-stated. This then suggests that CEG's estimate of the welfare effect may be similarly problematic.*

C1.3 Errors in, and high sensitivity of, input parameters, demand profiles, estimates of willingness to pay and the further concerns expressed above in this cross submission lead to our recommendation that the Commission must reject CEG's welfare analysis.

D The benefits of high speed broadband

D1 CEG cannot be certain that higher copper prices will drive migration to fibre

D1.1 CEG present 'evidence' to demonstrate that a higher UCLL and UBA price will lead to increased demand for fibre services, which is claimed to be welfare enhancing, even using the consumer welfare standard.

D1.2 CEG claim a welfare loss, due to delays in migration to broadband of 1-2 years, of $1.4 billion over 20 years (in NPV terms). Alternatively, assuming a 20% reduction in baseline for both the speed and level of take up, CEG claim a $5.8 billion reduction in consumer welfare (also over 20 years, NPV value).

D1.3 Such claims rely on the premise that higher UCLL and UBA prices will drive faster migration to fibre. We do not agree that such a cross-market effect can be so confidently accepted. NWS's own previous research is relevant:[17]

> *Network Strategies has consistently found that fibre uptake cannot be driven solely by price. For example, the quality of existing broadband services, and the strength of demand for high-bandwidth applications are strong drivers for fibre uptake. Furthermore, in New Zealand it is inappropriate to assume that all end-users may immediately switch to higher speed broadband services, as fibre*

[15] CEG Uplift Submission, Table 3 and paragraphs paragraphs 108-109.

[16] NWS CEG Cross Submission, s 4.

[17] NWS CEG Uplift Cross Submission. Quote refers to Network Strategies (2013), *Business case for UFB uptake in the Wellington region*, 8 March 2013. See Section 4.

services are simply not available as yet in numerous locations. Finally, 'high' prices for copper are likely to constrain the overall broadband market in New Zealand when compared with other countries.

Recommendation 12	Reject CEG's assertion that higher copper prices will definitively drive migration to fibre.

D2 Experience from other countries indicates that relatively high DSL prices are not a key driver for fibre uptake

D2.1 NWS have assessed copper and fibre shares of broadband subscriptions across the OECD using June 2014 data. The Scandinavian countries show the highest levels of fibre uptake, and yet these countries still have extensive copper networks and also cable services.

D2.2 NWS examined retail prices in Scandinavia, and report that DSL offerings tend to be priced lower than fibre, and comment:[18]

Those service providers that offer both fibre and DSL services clearly differentiate the various service offerings, with the higher value of fibre services – for example the ability to use high bandwidth applications or a guaranteed speed – being emphasised.

D2.3 This evidence supports our view that higher copper prices cannot be assumed to drive migration to fibre. Rather, we consider that higher copper prices are more likely to create a welfare loss to copper subscribers.

Recommendation 13	Recognise real-world experience from other countries which clearly indicates that relatively high DSL prices are not a key driver for fibre uptake.

[18] NWS CEG Uplift Cross Submission, s 4.2.