

**Review of New Zealand Commerce Commission “Amendment to the WACC percentile for electricity lines services and gas pipeline services”, Reasons paper published on October 30, 2014.**

**By Ingo Vogelsang, Boston University**

**October 24, 2014**

I am an economics professor at Boston University with a specialization in the regulation of network industries. My work has been tightly connected with the regulation and liberalization of the telecommunications and electricity sectors for almost 40 years. As a German native, who lives and works in the USA, I have been naturally exposed to international regulation issues, and I have consulted for regulators in various countries, such as Germany, the U.S., the European Commission, the Netherlands and Switzerland. Among the policy issues I have specialized in price regulation, both of end-user services and of wholesale access (to telecommunications and electricity transmission networks). I have published widely in this area, including a survey in the Journal of Economic Literature on access pricing and co-editorship of the two volumes of the Handbook of Telecommunications Economics. I have no conflict of interest, having not worked on the issues before me now for any of the parties involved in this pricing review.

I confirm that the following opinion is provided in accordance with the Code of Conduct for Expert Witnesses, as contained in Schedule 4 of the High Court Rules for New Zealand (Code of Conduct).

**Executive summary**

1. The New Zealand Commerce Commission (in the following NZCC or the Commission) has asked me to assess whether in my opinion the above report addresses the High Court's comments and whether the NZCC's decision on the percentile adequately balances the available evidence. In particular, I should state whether the Commission's final reasoning changes anything from my view on the Commission's draft.
2. In my review of the Commission's draft decision<sup>1</sup> I had stated that I was impressed by its even-handedness and was fully supportive of the overall result. I had added a few caveats about issues that did not change my overall assessment but, in my view, needed to be addressed. The current Reasons Paper successfully deals with these caveats, builds on and addresses new evidence and other information that have emerged after the Commission's draft report, and provides a clarification of the consumer welfare vs. total welfare controversy. As a result my previous assessment is strengthened, and I have no further caveats of any weight. The reduction in the WACC uplift from the 75<sup>th</sup> to the 67<sup>th</sup> percentile is unlikely to materially affect investment but will relieve consumers. In my view, the above report in a balanced way addresses the High Court's comments. The new empirical and theoretical evidence presented reduces the scope of necessary judgment and makes the residual judgment more informed. The time for an informed

---

<sup>1</sup> Ingo Vogelsang, “Review of New Zealand Commerce Commission ‘Proposed amendment to the WACC percentile for electricity lines services and gas pipeline services’, paper published on July 22, 2014”, July 31, 2014.

decision is therefore appropriate now. The Commission has taken utmost concern of the effects of the WACC uplift chosen on consumer welfare. At the same time the proposed 67<sup>th</sup> percentile of the WACC distribution is providing the regulated firms with a return that gives them confidence to invest and to innovate.

3. My review covers, in particular, three themes: (1) The Commission's clarification of the consumer welfare vs. total welfare controversy, (2) the new evidence and other information that have emerged after the Commission's draft report and how the Commission has dealt with those items, (3) how the Commission has dealt with my previous caveats.
4. My review of the Commission's draft decision noted that "[t]he NZCC is very circumspect about the weights to be assigned to consumer welfare and to total surplus in the regulatory objective" and that the lack of agreement among the various parties to the proceeding "introduces another level of uncertainty for the evaluation of the WACC percentile that requires judgment by the Commission." The Commission's clarification (explained in Attachment A of the current Reasons Paper) takes away this uncertainty and substantially strengthens the basis for the Commission's decision.
5. The main new evidence and other information that became available after the draft decision relate to (a) the Dobbs model, (b) various issues concerning the Oxera model, (c) the RAB multipliers, and (d) the other benefits besides reliability relevant for Transpower.
  - a) The overriding and arguably most important conclusion is Dobbs' assessment<sup>2</sup> (a) that the model cannot be used for determining the precise WACC uplift, although the model might justify the use of an uplift per se (i.e., justify a lower bound above the 50% mark) and (b) that the model does not work under a consumer welfare approach.
  - b) With the reduced importance of the Dobbs model the Oxera model gains increased importance for the Commission's decision and this increases the importance of additional information on the Oxera model. While the Oxera model was challenged from both consumer and network representatives, its numbers were not refuted and its standing gained from the Commission's clarification of consumer welfare as the overriding objective. It is significant that no new information emerged w.r.t. any substitute for the Oxera model. Everybody participating in the proceeding seems to agree that this conclusion still leaves a substantial part to the Commission's judgment
  - c) While the RAB multiplier analysis played a large role in the Commission's draft decision, it seems to play a somewhat lesser role in the final decision, restricting it to an assessment of the ability of network companies to finance new investments. The results show that a reduction of the allowed WACC from the 75<sup>th</sup> to the 67<sup>th</sup> percentile will not jeopardize this ability (paragraphs 6.33.6 and 6.33.7 and C6.5 of the Commission's current Reasons Paper).

---

<sup>2</sup> Ian M. Dobbs, "Comments on the Application of the Dobbs [2011] model", paper prepared for the New Zealand Commerce Commission, September 17, 2014.

The empirical base of the Commission's analysis of RAB multiples has substantially improved due to (a) additional data points and (b) two new aspects for the analysis. The new data points include two more asset sales of the Lines Company and OtagoNet and more information about previous asset sales. While only the OtagoNet asset sale clearly backs the Commission's contention that the 75<sup>th</sup> percentile over-compensates the network companies, the additional information about all the asset sales shows that none of the sales appears to be incompatible with the Commission's hypothesis. The new aspects for the analysis include re-calculated RAB multiples by adding other debt to the numerator and a numerical analysis of the effects of a reduction of the allowed WACC from the 75<sup>th</sup> to the 67<sup>th</sup> percentile on the RAB multipliers. The addition of other debt increases the average RAB multiples from 1.20 to 1.40 (Table C.1). A reduction of the allowed WACC from the 75<sup>th</sup> to the 67<sup>th</sup> percentile reduces the RAB multiples on average only by 4 percentage points. A further analysis of a reduction to the 50<sup>th</sup> percentile could have been used to estimate the size of the effects of other factors besides the WACC on the RAB multipliers.

- d) In Attachment E the Commission has, in response to submissions, referred to further information on positive consumer welfare effects besides ones from reliability improvements for Transpower. This is a welcome addition over the Commission's draft decision, because it alleviates doubts regarding the justification of a common WACC uplift for transmission and distribution network companies.
6. My main caveats on the draft report were (a) that the Commission should have disposed of the two-tier approach to the cost of capital issue now rather than postpone the decision, (b) that Oxera's analysis did not include the effects of additional investments on the RAB, (c) that the empirical basis for the RAB multiplier analysis was weak, (d) that the objective function was kept ambivalent, (e) that there were problems with using the Dobbs model, and (f) that using the 50<sup>th</sup> percentile as the starting point for the Commission's analysis was problematic. In my view, in the current Reasons Paper the Commission has satisfactorily addressed all these issues.
  7. In contrast to the draft decision the Commission is now providing a differentiation of the role of a WACC uplift by type of investment (paragraphs 5.53-5.76). This is a very helpful response to submissions, because it answers to a number of criticisms on Oxera's approach of restricting itself to reliability investments. The new investment categories are (a) investment to meet demand growth, (b) innovation investments, and (c) economic investments. The Commission argues convincingly that reliability investments remain the overriding category to be incentivized by a WACC uplift.
  8. The Commission, in my view, goes beyond the High Court's queries by not only considering the best WACC uplift in isolation but also taking into consideration other policies in place for achieving the same purposes, for example, the purpose of a high level of grid reliability. This relieves the burden placed upon the WACC uplift as a policy tool.

9. The report generally balances well the available evidence from the NZCC's own analysis, from the academic literature, from the NZCC's commissioned expert reports, and from submissions posted on the NZCC's website.
10. The review ends with a positive assessment of the commitment power of the current decision. Compared to the draft decision the final decision better responds to the High Court's concerns relative to (a) the two-tier capital approach, (b) the consumer welfare objective and (c) the theoretical/empirical basis including an assessment of the Commission's space for using judgment. The High Court suggested that the Commission should base its decision on empirical and theoretical analysis and results "if practical" (paragraph 1486). In my opinion, the Commission has done that to the utmost extent.

## Introduction

11. The New Zealand Commerce Commission (in the following NZCC or the Commission) has asked me to assess
  - Whether the Commission's final reasoning changes anything from my view on the Commission's draft. This should again be in reference to the original questions the Commission asked as below.
    - Whether in my opinion the above report addresses the High Court's comments in paragraphs 1422-1487 of the input methodologies merits appeal judgement.
    - Whether the NZCC's decision on the percentile adequately balances the available evidence including:
      - NZCC's own analysis (particularly the RAB multiples analysis in Attachment C); and
      - the expert reports NZCC has received (primarily Oxera, but also submissions and the expert reports on the NZCC website at: <http://www.comcom.govt.nz/regulated-industries/input-methodologies-2/further-work-on-wacc/>)
12. In my review of the Commission's draft decision I had stated that I was impressed by its even-handedness and was fully supportive of the overall result. I had added a few caveats about issues that did not change my overall assessment but, in my view, needed to be addressed. The current Reasons Paper successfully deals with these caveats, builds on and addresses new evidence and other information that have emerged after the Commission's draft report, and provides a clarification of the consumer welfare vs. total welfare controversy. As a result my previous assessment is strengthened, and I have no further caveats of any weight. The decision balances the two most important aspects of an allowed WACC above the midpoint. First, as Professor Franks noted, regulators do not and should not want to see the lights go out. Under

the current decision there is little concern that this will happen. Second, the reduction in the WACC uplift from the 75<sup>th</sup> to the 67<sup>th</sup> percentile is unlikely to materially affect investment but will relieve consumers. In the following I will repeat parts of my review of the draft decision and only make additions and changes where appropriate.

13. In my view, the above report in a balanced way addresses the High Court's comments in paragraphs 1422-1487 of the input methodologies merits appeals judgement and balances the available evidence. Furthermore, as a result of the current proceeding the evidence available for informed judgment on the appropriate allowed WACC has substantially improved. The new empirical and theoretical evidence presented reduces the scope of necessary judgment and makes the residual judgment more informed. While information can always increase further, the time for an informed decision is appropriate now.
14. The current proceeding has brought out the full complexity of a sound decision on the WACC uplift based both on theory and on empirical evidence. It has become clear that even with the best theoretical and empirical analyses a lot has to be left to the judgment of the Commission. Two issues in particular have to be on the Commissioners' minds. The first, openly addressed in the report, is the concern about the effects of the WACC uplift chosen on long-term consumer welfare. In contrast to the draft report the Commission has now provided a strong clarification of its interpretation of the objective of a loss analysis (in Attachment A). I comment on this clarification below in paragraphs 16 to 19. The second and related issue is that of providing the regulated firms with a return that gives them confidence to invest and to innovate. This issue is specifically addressed in the analysis of RAB multiples (Attachment C) and in the reasonableness test (Attachment D). Regulators have to make sure that with some high probability the regulated firms can actually cover their cost of capital in order to invest and innovate and that requires allowing the regulated firms a rate of return at least slightly higher than the regulator's own estimate.
15. In the following I first cover three themes: (1) The Commission's clarification of the consumer welfare vs. total welfare controversy, (2) the new evidence and other information that have emerged after the Commission's draft report and how the Commission has dealt with those items, (3) how the Commission has dealt with my previous caveats. These themes will be followed by remarks on other changes compared to the draft decision and on the relevance of other policies. The review ends with some short conclusions.

#### **The Commission's clarification of the consumer welfare vs. total welfare controversy**

16. My review of the Commission's draft decision noted: "The NZCC is very circumspect about the weights to be assigned to consumer welfare and to total surplus in the regulatory objective. This is probably intentional. There seems to be no general agreement among parties on what weights to use. Most parties to this proceeding either want consumer benefits only (consumer advocates) or total surplus only (regulated companies). In my view, this lack of agreement introduces another level of uncertainty for the evaluation of the WACC percentile that requires

judgment by the Commission.” The Commission’s clarification (explained in Attachment A of the current Reasons Paper) takes away this uncertainty and substantially strengthens the basis for the Commission’s decision.

17. In my opinion, by following closely the objectives as they are expressed in the law and in the High Court decision(s) the Commission (in Attachment A) is pursuing the safest and most justifiable route. It uses economic analysis to inform the interpretation of the law rather than substitute widely held economic objectives for the law. It is not what many economists think should be the objectives but what the letter of the law and the courts say they are.
18. In my view, the Commission rightfully emphasizes that the law prominently mentions the LTBEU as the overriding objective and mentions profits either directly only as not being excessive or indirectly as a tool towards driving investment and innovation. Thus overall, profits are viewed as a means but not as an end of the WACC determination.
19. I therefore agree that profits can at best be used as a proxy for the incentives for investment and innovation and that in that role the higher prices associated with higher profits have to be traded off against the dynamic long-term gains for consumers. It is therefore my understanding that the Commission has to use careful judgment in applying profits as a proxy for long-term consumer gains.

**The new evidence and other information that have emerged after the Commission’s draft report and how the Commission has dealt with those items**

20. The main new evidence and other information relate to the Dobbs model, to various issues concerning the Oxera model, to the RAB multipliers, and to the other benefits besides reliability relevant for Transpower. Reemphasizing what I said in my review of the draft decision, “The report generally balances well the available evidence from the NZCC’s own analysis, from the academic literature, from the NZCC’s commissioned expert reports, and from submissions posted on the NZCC’s website.”

New information on the Dobbs model

21. The two new pieces of information on the Dobbs model are the Frontier model runs, Dobbs’ own interpretation of those runs and the usefulness of the model for the current proceeding.
  - a) Frontier<sup>3</sup> had expertly re-created Dobbs’ model and adjusted some main parameters to the electricity network environment in New Zealand. In his paper for the Commission Dobbs<sup>4</sup> acknowledged Frontier’s technical achievement but had strong reservations, in particular, about Frontier’s choice of demand parameters and about the suitability of category 2 and 3

---

<sup>3</sup> Frontier economics, “Application of a loss function simulation model to New Zealand”, report prepared for Transpower, August 2014.

<sup>4</sup> Ian M. Dobbs, “Comments on the Application of the Dobbs [2011] model”, paper prepared for the New Zealand Commerce Commission, September 17, 2014.

investments of his model for the electricity sector. I agree strongly with both these points made by Dobbs, which would result in a smaller optimal WACC uplift than those found in the Frontier simulations.

- b) The overriding and arguably more important conclusion, however, is Dobbs' assessment (a) that the model cannot be used for determining the precise WACC uplift, although the model might justify the use of an uplift per se (i.e., justify a lower bound above the 50% mark) and (b) that the model does not work under a consumer welfare approach in the sense of Attachment A. Furthermore, Dobbs' concern about the use of the model for the electricity industry rather than for telecommunications and his concerns about the shape of the relevant demand neutralize Frontier's competently done model runs. From Dobbs' assessment follows that it cannot be used to justify an allowed WACC at the high percentiles found by Frontier.

#### New information on the Oxera model

22. With the reduced importance of the Dobbs model (from paragraph 21 above) the Oxera model gains increased importance for the Commission's decision and this increases the importance of additional information on the Oxera model.

- a) The main new information has been Sapere's<sup>5</sup> contention that Oxera's analysis is not fully rigorous in its use of statistics, because it assumes that the Commission's WACC sampling distribution is the true distribution. While this allegation is technically true, neither Oxera nor the Commission have pretended to use a statistically clean approach to the WACC distribution. Furthermore, Sapere's new analysis is also based on specific assumptions that may not hold,<sup>6</sup> and the new results are not qualitatively different from Oxera's old results.
- b) Several pieces of information were presented on the value of increased reliability to consumers. NZIER<sup>7</sup> provided new data that, in my view, do little to change Oxera's numbers.<sup>8</sup> The same holds for several submissions that try to take Oxera's 1-3 billion \$ estimate literally and therefore want to use an average. Oxera has now provided additional information which includes values below 1 billion \$ and therefore justifies Oxera's 1 billion \$ choice.<sup>9</sup>
- c) Oxera's choice of a consumer welfare approach has been justified by Attachment A of the Commission's report (see paragraphs 16-19 above).

---

<sup>5</sup> Sapere research group, "Proposed amendment to the WACC percentile – Commerce Commission's draft decision", report prepared for Vector, August 29, 2014, Section 5.4 in particular.

<sup>6</sup> See, in particular, Section 4.4 in Covec, "Cross Submission on WACC Percentile Issues", prepared for BARNZ, September 11,

<sup>7</sup> See NZIER, "Valuing investments in network reliability – An approach to estimating the value of reliability in electricity networks subject to WACC IM", NZIER report to MEUG, September 9, 2014.

<sup>8</sup> Countering NZIER, see HoustonKemp, "Analysis of Further Evidence in the Commerce Commission's Review of the WACC Percentile", Report for Powerco, September 30, 2014.

<sup>9</sup> See Table 4.3 in Oxera, "Review of expert submissions of the input methodologies", October 2014.

- d) Vogelsang's caveat<sup>10</sup> that in their calculation Oxera left out the cost of additional investment from the RAB has been reduced by Oxera's response that those additional investments also convey additional benefits to consumers that are not contained in the reliability benefits. Most such benefits are discussed in the Commission's report. In my view, there will still be a substantial net investment cost.
- e) Highly contentious was Oxera's judgment that only an underestimation of the true WACC compared to the allowed WACC by more than .5% per annum would trigger any investment response by the network companies.<sup>11</sup> And that the severity of the response would depend on the degree of underestimation. This is clearly very different from the Dobbs assumption for categories 2 and 3 in his model that even an epsilon underestimation will make investment cease totally. The Dobbs assumption is very radical and probably not meant to be realistic. It may hold to some extent for totally new services but certainly not for the reliability services that Oxera has been modelling. One can argue if Oxera picked the right numbers but the Commission has agreed with them because they look highly reasonable.
- f) In conclusion, it is significant that no new information emerged w.r.t. any substitute for the Oxera model. A saying by a late colleague of mine about game theory may also apply to the Oxera model: It may not be an ideal game, but it is the only game in town. In conclusion, the Oxera model has maintained or even strengthened its position as the empirical base for the Commission's decision and helps justify the 67<sup>th</sup> percentile uplift. Everybody participating in the proceeding seems to agree that this conclusion still leaves a substantial part to the Commission's judgment.

#### New information on RAB multiples

- 23. My previous review of the Commission's draft decision stated: "The NZCC's main conclusions draw heavily on an analysis of RAB multiples of the regulated firms. Unfortunately, the NZCC only has a valid sample of two firms as observations. The report makes the best of these two observations and does a convincing job trying to refute the arguments of commentators. It also adequately addresses the question what explains the large difference between the two observations. Nevertheless, the Commission had to exercise a substantial amount of judgment on this issue."
- 24. While the RAB multiplier analysis played a large role in the Commission's draft decision, it seems to play a somewhat lesser role in the final decision, restricting it to an assessment of the ability of network companies to finance new investments. The results show that a reduction of the allowed WACC from the 75<sup>th</sup> to the 67<sup>th</sup> percentile will not jeopardize this ability (paragraphs 6.33.6 and 6.33.7 and C6.5 of the Commission's current Reasons Paper). The empirical base of

---

<sup>10</sup> Ingo Vogelsang, "Review of Oxera's Report, *Input methodologies - Review of the '75<sup>th</sup> percentile' approach*", paper for the New Zealand Commerce Commission, June 25, 2014.

<sup>11</sup> See, in particular, Section 2.4 of the Frontier paper cited in footnote 3 above.



the Commission's analysis of RAB multiples has substantially improved due to (a) additional data points and (b) two new aspects for the analysis.

- a) The new data points include two more asset sales of the Lines Company and OtagoNet and more information about previous asset sales. While only the OtagoNet asset sale clearly backs the Commission's contention that the 75<sup>th</sup> percentile over-compensates the network companies, the additional information about all the asset sales shows that none of the sales appears to be incompatible with the Commission's hypothesis.
- b) The new aspects for the analysis include re-calculated RAB multiples by adding other debt to the numerator<sup>12</sup> and a numerical analysis of the effects of a reduction of the allowed WACC from the 75<sup>th</sup> to the 67<sup>th</sup> percentile on the RAB multipliers. The addition of other debt increases the average RAB multiples from 1.20 to 1.40 (Table C.1). A reduction of the allowed WACC from the 75<sup>th</sup> to the 67<sup>th</sup> percentile reduces the RAB multiples on average only by 4 percentage points. A further analysis of a reduction to the 50<sup>th</sup> percentile could have been used to estimate the size of the effects of other factors besides the WACC on the RAB multiples. According to my reading of the Commission's calculation a move from the 75<sup>th</sup> to the 50<sup>th</sup> percentile would lead to a total reduction of the average RAB multiples by 11 percentage points. This means that the analysis of RAB multiples on average would have been valid even if 9% (or for the adjusted case, 29%) of the multiple above 1.0 is explained by factors other than the WACC uplift.

25. The current report in Attachment C provides a detailed and careful analysis of the RAB multiples. It is clear from the outset that this work consists only of case studies that cannot be used for any statistical tests. The attachment mentions six potential cases, but bases its main conclusions only on four of them. The excluded cases concern Transpower, for which Northington Partners had found a valuation in excess of its book value, and Horizon, for which the RAB multiple appeared to be below 1.0. The exclusion of Transpower is understandable for lack of current market data and it is harmless, because it would only strengthen the report's hypothesis that the RAB multiple exceeds 1.0. In my previous review of the Commission's draft decision I had called the exclusion of Horizon "less innocent, because it is one of only three publicly traded electricity distribution companies". The Commission has now provided new evidence in paragraph C94 that has alleviated that concern. Obviously, the Commission's view on the thin market for Horizon shares is backed by Horizon's major shareholder and by PwC.<sup>13</sup>

26. The four crucial observations of RAB multiples for Powerco, Vector, the Lines Company, and OtagoNet are clearly much less obscure than those for Transpower and Horizon.

---

<sup>12</sup> This is based on a suggestion in IWA, "Commerce Commission's Proposed Amendment to the WACC Percentile for Electricity Lines Services and Gas Pipeline Services dated 22 July 2014", report to MEUG, August 29, 2014.

<sup>13</sup> On a personal note, a friend of mine, who is major shareholder of a small U.S. company, recently told me that he is not at all bothered by large share price movements of "his" company, because the share price is so much influenced by small trades that can be highly idiosyncratic.

- a) The observation for Powerco is the cleanest in the sense that Powerco is almost exclusively in the business that is subject to the WACC regulation and that a large fraction of its outstanding shares have been traded at about a standard 1.30 RAB multiple (adjusted 1.48). The only question here is if the acquirer AMP of 42% of Powerco's shares paid a premium above the "true" market price. The report here convincingly argues that AMP has not been trying to take over the Powerco business but rather was seeking a long-term financial investment. An argument not pursued in the report is that if AMP had tried to buy an equivalent ownership percentage of any company of Powerco's size in the open market it would have had to bid up the share price. However, equivalently the seller of 42% of Powerco's shares would have seen the share price drop upon an attempt to throw so many shares on the market. This argument therefore balances, unless one has specific information to the contrary. Such information obviously was not available to the Commission. I can therefore follow the Commission's judgment on the Powerco RAB multiple.
- b) Vector's standard RAB multiple of 1.14 (adjusted 1.36) is both smaller and less clean than that for Powerco. The reason why it is less clean is that Vector consists of several businesses, not all of which are governed by the WACC regulation. The stock market, however, values Vector only as a whole. The Commission has done an admirable job piecing together the full company value from its regulated and non-regulated parts. In my view, the calculations done by the Commission are generally convincing. However, the resulting valuations are clearly subject to potential valuation errors. Because of such potential errors the comparatively low standard RAB multiples (compared to that of Powerco) are somewhat disturbing. It may be that from a statistical perspective they are not really larger than 1.0. On the other hand it may be that they are really much closer to the RAB multiple of Powerco. These concerns are much less pronounced for the adjusted RAB multiples than for the standard results.
- c) 10% of the Lines Company were sold in December 2013 resulting in a standard RAB multiple of 0.77 and an adjusted value of 1.03 (Table C4). Neither of these outcomes would ordinarily be compatible with a hypothesis of excessive returns. Three factors seem to be responsible for these low RAB values. First, the Lines Company has been consistently charging prices below the allowed levels (paragraph C77.1). Second, costs were growing more than revenues (paragraph C78). Third, the company had diversified into loss-making unregulated businesses (paragraph C79.2). None of these factors seems to have anything to do with the allowed WACC. Thus, in the absence of these factors the RAB multiples for the Lines Company might have been substantially larger.
- d) In September 2014 51% of OtagoNet were sold to two shareholders leading to a standard RAB multiple of 1.89 and an adjusted value of 1.91 (table C5). These are by far the highest values among any of the sales used for the Commission's RAB multiples analysis. They may be to a large extent explained by the desire to acquire a controlling share in the company (paragraph C86). However, even that would leave substantial room for the Commission's WACC explanation.

### Additional information on WACC-related investments by Transpower

27. In Attachment E the Commission has, in response to submissions, referred to further information on positive consumer welfare effects besides those from reliability improvements for Transpower. This has been in response to numbers on such other investment effects provided in several submissions.<sup>14</sup> This is a welcome addition over the Commission's draft decision, because it alleviates doubts regarding the justification of a common WACC uplift for transmission and distribution network companies. The Commission also collected information on reliability-related investments indicating that Transpower will have difficulties avoiding such investments, although not all of them are mandatory under the Grid Reliability Standards. While other (economic) investments are likely to play a bigger role for Transpower than for the distribution networks, the amount of these investments appears to be smaller than Castalia claims (paragraphs E16-E29 of the Commission's current Reasons Paper). The Commission also argues that over-investment from an over-estimation of the WACC is likely to be less important for Transpower than for the distribution networks. From the balance of all this information it appears that the Commission's common treatment of the allowable WACC percentile for distribution and transmission networks is justifiable.

### **How the Commission dealt with my previous caveats**

28. My main caveats on the draft report were (a) that the Commission should have disposed of the two-tier approach to the cost of capital issue now rather than postpone the decision, (b) that Oxera's analysis did not include the effects of additional investments on the RAB (see above paragraph 22d), (c) that the empirical basis for the RAB multiplier analysis was weak (see above paragraphs 23-26), (d) that the objective function was kept ambivalent (see above paragraph 16-19), (e) that there were problems with using the Dobbs model (see above paragraph 21), and (f) that using the 50<sup>th</sup> percentile as the starting point for the Commission's analysis was problematic. Out of these caveats only (a) and (f) have not yet been addressed above.

29. In paragraph 3.39 of the current Reasons Paper the NZCC maintains their decision not to treat this split cost of capital approach in the current proceeding but rather treat it later together with the wider review of the IMs. I am satisfied that the Commission has made clear that at this point no party of the proceeding wants to open up the two-tier proposal (footnote 115). So, this is not a current issue and can be treated at the time the current WACC decision is again open for review. The Commission is very clear that moving to a split cost of capital approach would mean a different WACC uplift than staying with a common uplift for the whole RAB.

30. In paragraphs 2.10-2.16 of the current Reasons Paper the Commission continues to deny that the current 75<sup>th</sup> percentile should carry any particular weight in the decision going forward.<sup>15</sup> In

---

<sup>14</sup> See, for example, Castalia strategic advisors, "Response to Proposed WACC Percentile Amendment", report for Transpower, August 29, 2014.

<sup>15</sup> My reading is that the High Court, while giving the NZCC the benefit of the doubt on the 75<sup>th</sup> percentile, is open to a choice between the 50<sup>th</sup> and the 75<sup>th</sup> percentile.

my previous review of the Commission's draft decision I had argued in particular that between 2010 and now the regulated firms have "invested with the expectation that the current WACC regime would be in place longer than until October 2014. Thus, there is a commitment issue at least until the next planned IM review. Because of the High Court decision the Commission is right to revise the WACC uplift now but the past may have to carry some weight for the outcome." I am now satisfied that the Commission's decision would not have been materially different if it had started from the 75<sup>th</sup> percentile. The Commission clearly does not take the 50<sup>th</sup> percentile starting point as a presumption for a particularly high burden of proof for deviating from it. The high burden of proof, for example, called for by NZIER<sup>16</sup> could hardly ever be overcome.

### **Some other changes in the Commission's approach**

31. In contrast to the draft decision the Commission is now providing a differentiation of the role of a WACC uplift by type of investment (paragraphs 5.53-5.77). This is a very helpful addition, because it answers to a number of criticisms on Oxera's approach of restricting itself to reliability investments (now treated as part of "investment in network quality" in chapter 5 of the current Reasons Paper). The new investment categories are (a) investment to meet demand growth, (b) innovation investments, and (c) economic investments.
- a) While the benefits to consumers from investments that meet demand growth are potentially large, such investments are already incentivized by a weighted average price cap and such investments can be partially consumer funded (paragraph 5.67).
  - b) Since innovation investments play much less of a role for electricity networks than for telecommunications networks, incentivizing them through a specific (presumably quite small) WACC uplift on the whole RAB may be an over-kill. At the same time, because of the broad WACC uplift innovation investments will automatically benefit from an uplift justified by reliability investments (paragraph 5.73.1).
  - c) Economic investments relate to benefits to consumers and the economy at large, for example, from congestion relief or increased competition between electricity generators (paragraph 5.74). Such benefits relate mostly to Transpower and are therefore treated in paragraph 27 above.
32. In its draft decision the Commission put some empirical weight on my hypothesis that current investment under the 75<sup>th</sup> percentile approach might be optimal and that, as a result, a small

---

<sup>16</sup> See, for example, NZIER, "Changing the WACC percentile", advice to MEUG regarding Commerce Commission proposal to amend the regulatory WACC for electricity line & gas pipeline services, August 29, 2014. See also NZIER, "The WACC uplift question – A brief review of the balance between intuition and evidence supporting the WACC uplift", NZIER report to MEUG, September 12, 2014. In this latter report NZIER makes the point that under a WACC uplift the consumers would exchange an uncertain benefit (prevention of uncertain outages) for a certain cost (price increase from the uplift). This, however, is the nature of any insurance. You pay a certain premium for an uncertain benefit. A question not addressed in this proceeding is if consumers are risk averse w.r.t. outages.

reduction in investment caused by a reduction in the allowed WACC may hurt consumers less than they benefit from the price reduction.<sup>17</sup> This part of the draft decision was criticized, among others, by Sapere, who argue that there is no information available to show that current investments are optimal.<sup>18</sup> The Commission has now deemphasized this optimal investment contention. Given that the Commission's decision is backed by other evidence this step leaves less room for disagreement by the parties involved.

### **Relevance of other policy tools besides setting the WACC**

33. "Using the allowed WACC percentage is a crude policy instrument that is not well targeted and is likely to generate quite uncertain results relative to a targeted policy. At the same time, it can give the regulated firm discretion to find the best solution for a policy problem. Thus, the WACC policy is potentially less interventionist than other regulatory policies, such as the direct regulation of network reliability. It is therefore important to evaluate the WACC percentile policy against other policy instruments."<sup>19</sup> The Commission, in my view, goes beyond the High Court's queries by doing just that. The High Court wanted the NZCC to justify the WACC percentile with sound theory and convincing empirical data. I understand this to mean that the Court would be satisfied with an analysis of the merits of the 67<sup>th</sup> percentile against the 50<sup>th</sup> and the 75<sup>th</sup> percentile. The Commission went beyond that by asking the question if using the WACC percentile is a good policy relative to other policies that pursue the same objectives. For example, if the allowed WACC were set at 67% then reliability incentive regulation could increase the achieved WACC relative to the allowed WACC and therefore could under very good reliability performance even get the firms back to something like the 75<sup>th</sup> percentile. Thus, a further advantage of using the 67<sup>th</sup> instead of the 75<sup>th</sup> percentile is that it provides more room for the NZCC to use positive incentives ("carrots") for improving reliability. Thus, the grid owners may come closer to their old profitability via reliability incentives. Since reliability is the result of both dedicated investments and better operating procedures, using a too high WACC uplift may bias the achievement of reliability in favor of investment.
34. Using the WACC uplift is a very broad policy tool. Unless one uses it on a case-by-case basis it addresses all of the regulated firm's investments, those that are highly valuable and central to the public and those that are more tangential. Thus, the consumers may have to pay more for all the firm's investments in order to incentivize just a few of them. Thus, there may exist more targeted tools to achieve the same outcome or those targeted tools may complement the WACC uplift.<sup>20</sup> I see this as a particular task and opportunity if different industries like transmission and distribution grids receive the same WACC uplift but may be characterized by different

---

<sup>17</sup> Ingo Vogelsang, "On the economic effects of allowing a WACC above the midpoint", paper for the New Zealand Commerce Commission, June 12, 2014.

<sup>18</sup> See the Sapere paper cited in footnote 3 above, p.6.

<sup>19</sup> Ingo Vogelsang, "Review of Oxera's Report, *Input methodologies - Review of the '75<sup>th</sup> percentile' approach*", paper for the New Zealand Commerce Commission, June 25, 2014, p. 11.

<sup>20</sup> The Commission in its current Reasons Paper notes that under the Dobbs model the WACC uplift is the only instrument available to the regulator (paragraph B17).

investment problems. In that case policies other than the WACC uplift may be able to bridge some of the differences. This may be feasible both if the WACC uplift is higher than necessary and if it is lower than necessary. If the WACC uplift is higher than necessary the other policies may use penalties (“stick”) to achieve the desired outcome, while under a too low WACC uplift they may use premia (“carrots”) for desired performance. A WACC uplift, however, can be a good or even the best tool for purposes, such as innovation, which arguably cannot fully be achieved with other policy tools.

## Conclusions

35. In order to provide a stable outlook for long-term investments the current NZCC decision should hold up for a long time. There are good reasons to believe that such commitment can be achieved. The current decision is in no way extreme. It should provide the regulated firms with returns on their investments that will cover their cost of capital but not much more. Thus, both consumer groups and firms should have little reason wanting to deviate from this percentile. While new information on the various aspects of this proceeding can be expected in the future, it is unlikely to move the perceived optimum by a lot. In particular, new information will also apply to the measurement of the WACC so that it better reflects the firms’ actual cost of capital. This applies, in particular, to concerns raised by parties about measurement biases addressed in paragraphs 4.25-4.27 of the current Reasons Paper.
36. Compared to the draft decision the final decision better responds to the High Court’s concerns relative to (a) the two-tier capital approach, (b) the consumer welfare objective and (c) the theoretical/empirical basis including an assessment of the Commission’s space for using judgment. The Commission followed the High Court’s suggestion that the Commission should use a loss function approach (paragraph 3.13 of the Commission’s current Reasons Paper). The Commission sees this as providing a range of outcomes rather than a point estimate (paragraph 3.17). Even if such an analysis provides only limited numerical precision it clarifies the remaining judgment by forcing consistent thinking and by laying out the relevant issues in a coherent fashion. It should here be kept in mind that the High Court suggested that the Commission should base its decision on empirical and theoretical analysis and results “if practical” (paragraph 1486). In my opinion, the Commission has done that to the utmost extent.