Submission to the Commerce Commission on the CPP Process Review

An independent report prepared for the Electricity Retailers Association of New Zealand

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Disclaimer

Introduction

1 This submission responds to the Commerce Commission's (the Commission's) open letter requesting feedback on the customised price-quality path (CPP) process used to assess Powerco's and Wellington Electricity's recent proposals. The Commission is seeking feedback from stakeholders surrounding this process.

2 TDB Advisory Ltd (TDB) has been engaged by the Electricity Retailers' Association of New Zealand (ERANZ) to prepare an independent submission responding to the Commerce Commission's open letter. TDB previously prepared a submission on behalf of ERANZ responding to the Commission's issues paper regarding Powerco's CPP proposal. One of the main topics of discussion in our earlier submission was the need for a cost-benefit analysis (CBA) to supplement Powerco's application, in order to be assured that the proposed additional spending is in the long-term interests of consumers.

3 We appreciate that in its draft and final decision on Powerco's CPP proposal, the Commission addressed the issue of including a CBA in its assessment. In its final decision, the Commission made the following points regarding the inclusion of a CBA:

i. the use of a CBA was not raised during the recent review of CPP input methodologies, and there was thus no requirement to undertake a CBA of Powerco's proposal. The Commission noted that adding new evaluation criteria during the course of an assessment would risk undermining the certainty and predictability which the input methodologies are based on;

ii. the contribution a CBA would make to the proposal would depend on the robustness of the CBA, its structure, scope and underlying assumptions. In order to accurately quantify the range of potential benefits to consumers, an asset management framework for example is required, something which Powerco is currently developing;

iii. the Commission had concerns over various aspects of the CBA undertaken by NZIER. These concerns included possible understating of net benefits, issues with DPP scenario modelling and the 10-year time frame used by NZIER;

iv. though the Commission was not obligated to undertake a CBA for Powerco's proposal, it could be a useful tool in assessing whether a CPP proposal promotes the long-term benefit of consumers. However, the appropriate forum for introducing a requirement for CBA would be in the review process for the input methodologies applying to CPPs. This would enable applicants to consider and consult on the relevant information requirements to be included in their assessment.[1]

4 This submission aims to address the issues raised above and to demonstrate the general case for the inclusion of a CBA in future CPP proposals. We acknowledge the point raised by the Commission that requiring a CBA halfway through a proposal may risk undermining the certainty and predictability of the process. The Commission continued by stating that it would be more

[1] Commerce Commission, "Powerco's customised price quality path – Final decision", p. 43-45.

appropriate to introduce the idea of including a CBA during a review of the CPP processes. We therefore see this Process Review as an appropriate opportunity to assert the case for including CBA as an evaluation tool for future CPP applications.

5 The Commission's open letter welcomes feedback on the use of a CBA, with particular interest in the following points:

i. potential changes to the customised price-quality path requirements that could help support the use of cost-benefit analysis as a tool to inform customised price-quality path proposals.

ii. areas of potential customised price-quality path proposals that could be the focus of further work to understand how benefits can be quantified (eg, health and safety); and

iii. how an asset criticality framework could help support identifying expected benefits of additional expenditure.

6 This submission first makes the general case for the use of CBA in decision making. It then addresses the three points above in turn, and then comments on selected other topics for feedback raised by the Commission.

The case for cost-benefit analysis

7 Cost-benefit analysis (CBA) is a well-established and internationally recognised means for assisting decision making.[2] CBA has been used by the World Bank since at least the 1950s as a means of ranking investment projects. Further, nearly all Western industrialised countries have protocols covering the application of CBA to a broad range of public investment opportunities or specific program areas.[3] CBA will also be an essential tool in the New Zealand Government's toolkit as it looks to apply its Living Standards framework.

8 We note also that CBA is required by the Commerce Commission for major electricity transmission capital expenditure proposals by Transpower under the Transpower Capital Expenditure Input Methodology. The Transpower Capex IM states:

> "For any project to receive Commission approval, it must satisfy the investment test. The investment test uses cost-benefit analysis and discounting of relevant costs and benefits in the electricity market over a defined calculation period." [4]

[2] For an introduction to CBA, see for example "Cost Benefit Analysis, Concepts and Practice" by A. Boardman, D. Greenberg, A. Vining and D. Weimer, Prentice Hall, 1996 and "Cost-Benefit Analysis" edited by R. Layard and S. Glaister, Cambridge University Press, 1994.

[3] In the USA, for example, every major regulatory initiative (costing over $US100,000) must be accompanied by a CBA of the impact of the regulation. In Canada, a Federal-Provincial government agreement requires that all river flood control projects have to be determined to be engineeringly sound and economically viable, with economic viability determined by CBA.

[4] Refer "Transpower capital Expenditure input Methodology Reasons Paper," Commerce Commission, January 2012, page viii.

9 Under CBA the costs and the benefits of alternative projects are assessed over the life of a project. The costs are the opportunity costs of the extra resources a project employs and the benefits are the outputs of the project at values that indicate consumer utility. These values are typically estimated from the willingness of consumers to pay for the project's extra goods and services. In competitive markets the output value and the opportunity costs can often be closely proxied by market prices. In other cases including where a service provider has market power estimation is required. The criterion of CBA essentially mimics economic efficiency. The costs and benefits in a CBA are the extra costs and extra benefits resulting from the project. In the case of a CPP proposal, a CBA would be conducted by comparing the costs and benefits of the proposed additional investment against the counterfactual of the costs and benefits expected under the DPP.

10 Several important features of CBA should be noted:

i. future benefits and costs are discounted at an appropriate discount rate to reflect the higher value that is placed on consumption today versus deferral of consumption into the future;

ii. no distinction in general is made in national CBA regarding which individual New Zealand residents enjoy or suffer changes in welfare – the standard criteria is the total welfare of all New Zealand residents independent of its distribution – although some parts of the Commerce Act set the objective as the long-term interests of consumers. CBA can also be applied at a regional or district level; and

iii. environmental and social costs and benefits that are difficult or impossible to quantify in monetary terms can in principle be taken fully into account. Where such costs can be identified and quantified in monetary terms they can be included directly in the calculation of the net national benefits or the long-term interests of consumers. Where such effects can be identified but not quantified an implicit maximum value for the bundle of these sorts of net costs that enables a positive NPV may be inferred from the analysis.

Incorporating CBA into CPP proposals

11 A key criterion for the Commission's evaluation of CPP proposals is that that they satisfy the "expenditure objective". The criterion is defined as follows: "[the] objective that capital expenditure and operating expenditure reflect the efficient costs that a prudent non-exempt EDB would require to:

a) *meet or manage the expected demand for electricity distribution services, at appropriate service standards, during the CPP regulatory period and over the longer term; and*
b) *comply with applicable regulatory obligations associated with those services."*

12 The verification of what expenditure a prudent non-exempt EDB would require to meet or manage demand at a particular service standard is a technically complex task, though this should not crowd out consideration of what should be considered the "appropriate service standards". The input methodologies do not currently specify how "appropriate service standards" are to be determined. It is our assessment that establishing a CBA, which compares the costs and benefits that result from

full approval of the CPP proposal with one or more appropriate "counterfactuals" would be the most appropriate way to assess this.

13 Testing whether an aggregate level of expenditure reflects efficient costs normally includes considering whether the additional costs proposed are allocatively and dynamically efficient, in other words, provide a commensurate benefit to consumers. We note that the standard way to assess this is a CBA. Given that it is based on robust analysis and assumptions, such a CBA would illustrate whether the additional costs to be allowed are matched or exceeded by the reliability (and any other) benefits.

14 Absent consideration of allocative efficiency by way of an overall CBA, there is a risk of circularity in testing whether the expenditure objective is met. The circularity would arise where the components of the expenditure proposal are subjected to a test as to whether they are efficient in technical, eg engineering, terms but no test is applied as to whether the additional costs are efficient as regards allocative and dynamic efficiency (ie, does the overall benefit of reduced outage frequency and duration outweigh the cost to consumers of achieving the reduced outage frequency and duration).

15 Wellington Electricity's CPP proposal included a CBA. The CBA compared the costs and benefits of four options over a 20-year period, against the status quo of 'do nothing'. This proposal also included a brief analysis of seven sub-options. By comparing its desired CPP proposal pathway with a range of alternates, Wellington Electricity aimed to verify which CPP pathway was the optimal choice.

16 Without undertaking a CBA analysis, based on a comparison of the outcomes of the proposed expenditure with the counterfactual(s), the question of how to assess "appropriate service standards" arises. Lack of a CBA makes it difficult to gauge what change is truly allocatively efficient, and in the long run best interests of consumers. We therefore recommend that the Commission standardise the inclusion of a cost-benefit analysis in CPP proposals, as a means of testing the expenditure objective.

Quantifying all the relevant costs and benefits

17 We agree with the Commission's statement that the value of a CBA in the CPP proposal process depends on the robustness of the analysis, including its structure, scope and underlying assumptions. We also believe that an appropriately robust CBA which quantifies to an appropriate extent the relevant costs and benefits is neither impossible nor too labour intensive.

18 In the submissions stage of the Powerco case, NZIER undertook a CBA of Powerco's proposed price-quality path and its alternatives. One of the Commission's concerns with the NZIER's CBA was that it only included one of the benefits of the expenditure (the reliability benefits), whilst ignoring the health and safety benefits of replacing assets, the ability to meet future growth in customer connections and improvements in operational efficiency.

19 It is fundamental to a robust CBA that regardless of whether some aspects are harder to quantify, all relevant costs and benefits are included in quantitative or qualitative term. This includes

assigning a monetary value to intangible costs and benefits (eg, health and safety benefits) where possible. It can also mean applying real options analysis as way of quantifying the optionality around an investment decision, including putting a value on the option of waiting or deferring an investment.

20 It may seem difficult to quantify in monetary terms, for example, the value of human life, but the NZ Transport Agency does this in setting the value of statistical life (VOSL), alongside the value of life quality lost due to a serious injury. Despite the challenge of assigning a figure to VOSL, a quantification is necessary for the assessment of road safety programmes. The current VOSL is $3.95 million, while the value of life quality lost due to a serious injury is 10% of this value.[5] In a similar sense, various benefits of investment (like health and safety benefits) are quantifiable for the purpose of a CBA.

21 As for costs and benefits that cannot be realistically (and cost effectively) quantified in monetary terms, a CBA is still very informative. The appropriate response is to examine the net present benefit result derived from the CBA when all costs and benefits that can be quantified in monetary terms are included. Where the net present value so derived is negative that negative value provides a measure of what additional value would need to be attributable to unquantified benefits (after allowing for any unquantified costs) for the proposal to be beneficial overall. Where the net present value derived from quantified costs and benefits is positive that positive value provides a measure of what unquantified costs (eg, environmental costs) after allowing for any unquantified benefits could be attributed without the proposal being detrimental. Social and environmental impacts may fit into the category of unquantified benefits or costs. This was the case for Wellington Electricity, who stated that CBA:

> "[cannot] capture the wider societal and economic impacts that an event such as a major earthquake could have on the Wellington region. However, it provides us with a useful tool to measure the relativity of options and provides assurance that we are investing in the right solutions to improve our ability to respond."[6]

22 Wellington Electricity makes an important point above. Ultimately the CBA is a useful tool to assists rational decision making. It is not without its caveats, however ultimately the CBA proves highly valuable in evaluating a CPP proposal. Furthermore, without such analysis, it is unclear as to how to provide assurance on whether the proposed CPP is in fact the optimal pathway.

Asset criticality framework

23 It is important for a CPP proposal to illustrate that the proposed management of asset health and criticality is optimal for consumers. The electricity distribution market is dynamic given the uncertainty that exists with regard to new technologies such as batteries and electric vehicles. Therefore there is an understandable level of doubt to be had over future demand forecasts for a CPP applicant. The proposed capex of an applicant may in fact be for demand that does not eventuate. Therefore the capex undertaken should take consideration of this uncertainty whilst

[5] New Zealand Transport Agency, "Approaches to valuing injury and mortality risk in transport assessments", 2015, p. 18.
[6] Wellington Electricity, "Earthquake Readiness - Business Case", 2017, p. 32.

understanding the immediate need for upholding network criticality. It may be prudent to withhold some capex until there is greater certainty of future network demand.

24 In the absence of an asset criticality framework there is an inability to determine which assets are an immediate priority and which can be relied upon to uphold the integrity of the network, until further certainty of future demand is understood. It is therefore important that the necessity of proposed capex is well understood, as an over-eagerness to replace existing assets will simply result in consumers paying higher prices.

25 A robust quantification of the probability of network failure would assist the Commission in determining the necessity of proposed investments. For example, it would assist if the applicant could provide probabilities of network failure (and the necessary sensitivity analysis) under the relative investment options. These probabilities could be incorporated into the CBA outlined earlier in this report.

26 In the case of Powerco, the overall composition of asset health in 2017 was modelled under three scenarios:

i. current asset health;

ii. planned renewals under the proposed CPP investment; and

iii. a "do-nothing approach".

27 There was no modelling of asset-health under the current DPP investment, so the counterfactual in the analysis was misleading. The "do-nothing" level of asset-health does not account for investment that would take place under a DPP. It instead represents a literal "do-nothing" approach (ie, no investment). Whilst Powerco acknowledges the "do-nothing" case is not a reflection of a continuation of the DPP, it still presents a misleadingly divergent counterfactual. There should be a presentation of asset-health under the DPP to complement the modelling under the CPP.

28 Without the appropriate counterfactual it is difficult (if not impossible) to distinguish the gains in asset-health resulting from the proposed increase in capex. Comparing asset-health under the CPP proposal (in 2027) with current asset-health is misleading, as it does not account for the deterioration in the next ten-year period that the CPP investment prevents. Likewise, comparing asset-health under the CPP proposal with a "do-nothing" approach is also misleading, as it does not compare the CPP with a realistic outcome.

29 The Commission notes[7] in its final decision that Powerco is currently developing an asset criticality management framework, an area which the Commission intend to monitor. If Powerco is able to develop a reliable and robust framework, it seems possible for this to set the standard for future CPP assessments. The asset criticality management framework based on appropriate counterfactual(s) could then become a key input into the CBA undertaken for a CPP proposal.

[7] Commerce Commission, "Powerco's customised price quality path – Final decision", Para 132.

Other issues

Long-term pricing impact

30 We agree with the Commission's view regarding the full pricing impact of CPP decisions. The Commission states:

> "we consider it important to create transparency around the full impact the CPP will have on pricing, as this is not, as outlined correctly by MEUG and ERANZ, fully reflected in the initial price increase (ie, from the year prior to the CPP period to the first year of the CPP period). We therefore reiterate our view that the initial price increase is likely to be followed by a subsequent and more material one."[8]

31 The Commission's Infographic released with the Powerco CPP decision alerts consumers to the issue by highlighting in a separate box "Additional price increase in 5 years following network upgrades".[9] The size of the additional increase is not reported in the Executive Summary of the decision but is revealed in Chapter 2 of the decision as around 10%. Thus the full increase in allowable revenue as a result of the decision is around 15%.

32 We agree with the Commission that transparency is crucial in cases of this type, where the full price increase effect of the decision is estimated to be over three times the initial price increase. Therefore we strongly support the Commission's proposal in its open letter that:

> "In order to increase transparency, we consider customised price-quality path applicants should be required to consult with their consumers on the indicative long-term price impacts of their proposals. We acknowledge there is significant uncertainty around the extent of the subsequent price increase, however, our view is that the benefit of additional transparency to consumers regarding the price/quality trade-off in an expenditure proposal outweighs the limitations in the analysis".[10]

33 We suggest that such a requirement is a logical implication of the expenditure test that the proposed costs are the efficient costs required to meet or manage expected demand "during the customised price-quality path regulatory period and over the longer term."[11] We submit that if the Commission considers a change in the CPP IM is required, in order for the Commission to apply such a requirement, the Commission should proceed expeditiously to review the CPP IM so as to be in a position as soon as possible to make consultation on this basis a requirement.

34 In anticipation of contrary submissions regarding the requirement to consult on indicative long-term pricing impacts we analyse the issue of uncertainty in long-term pricing estimates to provide perspective on that aspect of the matter.

35 As with virtually any quantification of the future impacts of an investment decision, the estimate of the full impact the CPP will have on pricing requires assumptions. The decision paper comments: "In particular, the extent of the price increase in the subsequent period would depend on Powerco's

[8] Para 521, NZCC 5, *Powerco's customised price-quality path final decision*, 28 March 2018.
[9] http://www.comcom.govt.nz/regulated-industries/electricity/cpp/cpp-proposals-and-decisions/powercocpp/.
[10] P6, NZCC, *Open letter seeking feedback on Powerco and Wellington Electricity CPP processes*, 3 July 2018.
[11] Para 69.1, NZCC 5, *Powerco's customised price-quality path final decision*, 28 March 2018.

actual capex during the CPP period as well as the WACC rate at that time and the expenditure forecasts used when resetting prices. None of these are known or easy to forecast at this stage and could well be significantly different from the assumptions we used in the preliminary analysis we did for the Issues paper".[12]

36 We submit that many of the assumptions required to estimate the full price impact are the very same ones the Commission is using in determining the CPP price path. On close analysis, this results in the estimate of the full price impact being a more robust measure of the CPP's effect on consumers' economic welfare than the decision paper discussion quoted above might be read as suggesting.

37 Specifically, the estimate of the full price impact uses the same assumption for capex during the CPP period as is used in deriving the CPP price path. If actual capex is less than this assumption, then allowed revenue during the CPP period will have been higher than was needed to provide normal returns (all else being equal). The price increase at the beginning of the next regulatory period will be lower than the estimate but for consumers this will be just be an offset against having paid prices which provided for capex that did not occur.

38 The position regarding the WACC assumption is similar. The estimate of the full price impact uses the same WACC assumption as is used for the last 2 years of the CPP period in deriving the CPP price path. If the actual WACC in the last two years and at the start of the next regulatory period is lower than assumed, then the price increase at the beginning of the next regulatory period will be lower than the estimate. For consumers, however this will just be an offset against having paid prices which reflected a higher WACC than the actual level (during the last two years of the CPP period). Later in this submission we discuss the more general issue of the need for a "with versus without" comparison to complement the "before versus after" analysis.

39 The estimate of the full price impact requires assumptions regarding depreciation rates but again these assumptions are similar to those that need to be made in deriving the CPP price path.

40 The Commission's Powerco final decision paper (as referenced above) also notes that the full price impact estimate requires expenditure forecasts, ie for the post-CPP regulatory period. We submit that scrutiny of these forecasts is an intrinsic requirement of the assessment of the CPP. The test of whether a CPP proposal meets the expenditure objective requires consideration of "efficient costs required to meet or manage expected demand".[13] In this context, Powerco's justification for its CPP application include that a CPP price path based on higher capex would result in a reduction in opex in the post-CPP regulatory period.

41 Therefore we submit that the type of justification for a CPP proposal that Powerco offered (in regarding to future opex) needs to be given due prominence in the CPP decision paper to both inform consumers and appropriately specify the basis on which the CPP decision is being made, ie the commitments on which the Commission and consumers are relying. Giving appropriate prominence to the estimate of the full price impact of a CPP decision is an important way of informing consumers of the justification for a CPP decision.

42 In summary, we agree with the Commission that it is important to create transparency around the full impact the CPP will have on pricing. Our submission is that the Commission should not be

[12] Para 520, NZCC 5, *Powerco's customised price-quality path final decision*, 28 March 2018.
[13] Para 69.1, NZCC 5, *Powerco's customised price-quality path final decision*, 28 March 2018.

inhibited from giving an appropriate role and prominence to the estimate of the full price impact by disproportionate concerns regarding uncertainty of the estimate. Our analysis demonstrates that the assumptions used in the full price impact estimates are similar to those used in setting the CPP path. Importantly, this commonality of assumptions means that the full pricing impact estimate is a more robust indicator of the effect of the CPP decision on consumer economic welfare than the discussion, presented in the Powerco decision paper, might be read as suggesting.

43 Achievement of the required transparency would be assisted by provision of a full pricing impact estimate using a "with and without", ie, a counterfactual methodology – to the extent it is feasible – to provide a comparison with the "before vs after" estimation on which the 15% full price increase estimate is based.

44 The most significant modification required to provide a "with versus without" estimate would be use a constant WACC (ie, the DPP WACC) for the calculation of the price impact of the decision. This would separate out the effect of the reduction in WACC that is being assumed in both the CPP price path decision and in the estimate of the full pricing effect. The full price impact would be greater than 15% if WACC did not reduce. The other main modification required to provide a "with versus without estimate" is to set the base case opex and capex assumptions using forecasts of what the Commission would have allowed if a DPP price path continued to apply to the applicant. Formulation of appropriate assumptions for a situation of this type is a standard approach in many areas of analysis and the Commission is well placed to determine such assumptions without prejudice to its actual decisions. It is appropriate to note that the probable effect of such an analysis would be to offset, in part, the WACC reduction effect.

Deliverability and accountability of CPP commitments

45 We agree with the Commission's views regarding the need for monitoring the delivery of capex and related actions that CPP applicants offer as the justification for higher price and quality paths as noted by its final decision for Powerco's CPP, which states:

> "Powerco seeks an increase in maximum prices to fund new investment in the network. In allowing Powerco to increase prices, we and consumers want assurance that the proposed investment does indeed occur, that it targets the necessary areas, and is effective in improving the long-term delivery of safe, efficient and reliable electricity lines services to consumers.
>
> We considered linking delivery of this investment to Powerco's ability to increase prices. For instance, we could have limited Powerco's ability to increase future prices and/or clawed back price increases where the proposed investment did not in fact occur. We decided against this in the case of Powerco only because we had not previously signalled this to the industry and potential CPP applicants. However, we may consider such an approach in future and that may require future IM amendments.
>
> We want to ensure Powerco is transparent about how it is delivering the proposed investment it has committed to deliver during the CPP period. Accordingly, our final decision is to require Powerco to provide a stakeholder focused annual report on the delivery of its planned investments".[14]

[14] Para 611-613, NZCC 5, *Powerco's customised price-quality path final decision*, 28 March 2018.

46 We submit that the Commission should proceed expeditiously to review the CPP IM so as to be in a position in the future to require CPP applications to include a commitment that price increases granted under a CPP will be conditional on delivery of the proposed investments in fact being undertaken.

Conclusions

47 CBA is a conventional and important component of the public decision-maker's toolkit when considering major new investment proposals. The Commerce Commission requires a CBA when assessing major new investments by TransPower in the electricity grid. Not having a similar requirement for major investments by the EDBs in the distribution network when they apply for a CPP is a major omission in our view. This omission can and should be rectified as part of the current CPP Process Review.

48 The CPP review is also an opportunity for the Commission to establish more rigorous standards and expectations around other parts of the regime. This should include in our view requirements for the applicant to:

- assess asset health relative to what would be expected under the DPP;
- estimate and be fully transparent on the long-term pricing impacts of a CPP relative to the expected pricing outcomes under the DPP; and
- guarantee the delivery of investment and related activities proposed under a CPP application.