Submission on Powerco's CPP Proposal

ERANZ
Electricity Retailers' Association of New Zealand

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1 Executive summary

1.1 This submission responds to the Commerce Commission's (the Commission's) paper on issues to explore and consider ("the Issues paper") regarding Powerco's application for a customised price-quality path (CPP). The proposed CPP will allow Powerco to increase its operating and capital expenditure (and consumer prices) above those permitted under the DPP as well as suspend incentive-based restrictions on its level of planned outages.

1.2 Our assessment is that the Powerco application and the accompanying verifier's report need to be complemented by Commission analysis to test whether the proposed CPP optimises the price-quality trade-off for consumers. Without such a cost-benefit analysis (based on a proper specification of the counterfactual) of the proposed additional spending, it is not evident that the proposed CPP or a variation of it is in the best interests of consumers. The information necessary to do such an analysis is, in general, provided in the Power Co application and the verifier's report, with the notable exception of the likely path under the appropriately specified counterfactual: ie, the "without the CPP" scenario of a continuation of the DPP. We consider that it is essential that the Commission provide sufficient information on that counterfactual as the Commission has the best information of what a continuation of the DPP will look like for Powerco.

1.3 We agree with the Commission that the real price increase for consumers indicated in the application (5.7 percent in the first year) is an underestimation of the long-term pricing impact of the CPP. The true long-term price impact is higher due to the increased capital expenditure being recovered over the regulatory lifetime of the respective assets. A better representation of the true price impact on consumers is the difference in present valued capital and operating expenditure between the proposed CPP and the continuation of the DPP. The Commission has estimated that there is a 42 percent increase in present valued expenditure between the proposed five-year CPP period and the five-year DPP period preceding it. While this may be indicative of the consumer price impact, it does not serve as an accurate counterfactual as it is a "before and after" rather than a "with and without" comparison. The analysis of the long-term pricing impact of the CPP is unavoidably complex. We suggest the Commission will need to provide a comprehensive analysis that informs interested parties; in the way it needed to do for airport pricing.

1.4 Other issues with the Powerco submission that need to be addressed during the review include the need for an asset-criticality framework, which when coupled with the dynamic and highly uncertain demand environment (eg, as a result of local battery storage and electric vehicle technology), leaves doubt as to the urgency and necessity of the proposed investments. Similarly, the absence of an appropriate asset-health counterfactual (based on the DPP path) leaves doubt as to the level of asset-health stabilisation/improvement that the proposed CPP will provide (over and above a continuation of the DPP). The verifier raises some concerns with Powerco's asset management plan which, when considering the precedent-setting nature of this CPP application, may set a less than desirable standard for future CPP proposals.

1.5 Since the effects of technological change, and thus the longer-term demand for the services provided by Powerco, seem likely to be much better understood in a few years' time, we suggest

the Commission should strive to mitigate the risk of consumers paying for new assets that are not required. The risk could be reduced by revision of the timetable for Powerco's proposed capital expenditure programme from five years to a longer timeframe, such as ten years. In terms of the current CPP application, the Commission could set opex and capex allowances consistent with a longer timeframe, on the basis that Powerco could apply for a second CPP towards the end of the first CPP period. We suggest that the Commission include analysis of an extended timeframe in its review and draft decision.

2 Introduction

2.1 TDB Advisory Ltd (TDB) has been engaged by the Electricity Retailers' Association of New Zealand (ERANZ) to prepare an independent submission responding to the Commission's Issues paper regarding Powerco's proposal to the Commission to change its price and quality standards by the way of a Customised Price-Quality Path (CPP). Pat Duignan has assisted TDB in the preparation of this paper.

2.2 We have read the High Court's Code of Conduct (rule 330A, High Court Rules) and have complied with it in the preparation of this submission.

2.3 TDB appreciates that the Commission, in developing its Issues paper, has focussed on areas of concern identified by the verifier, and particularly on the issues that the Commission believes stakeholders can provide helpful feedback. In this report, we focus on the first, second, fourth and fifth issues listed on page 17 of the Issues paper. Those issues being:

a) quality – issues relating to Powerco's proposed quality measures and standards;

b) the long-term pricing impact of Powerco's CPP proposal;

c) asset health and criticality and its impact on capex forecasts; and

d) network-evolution capex.

2.4 This report also addresses throughout what we consider to be a key issue in the process of the CPP application that is not included in the Commission's Issues paper. We consider it the Commission's responsibility to provide its own information regarding the DPP counterfactual going forward to assist in its own decision on the optimality of the proposed price and quality impacts of the CPP application.

2.5 Following the executive summary and this introduction, the remainder of the report is structured as follows:

- Section 3 looks at the appropriateness of the service quality standards proposed under the CPP, with a focus on achieving the optimal price-quality trade-off for consumers;
- Section 4 focuses on the long-term pricing impact of the CPP proposal on consumers - highlighting the underestimation of long-term prices in Powerco's CPP proposal;
- Section 5 discusses the asset management plan of Powerco with a specific focus on the uncertainty of future electricity distribution demand coupled with the absence of an asset criticality framework;
- Section 6 discusses the network evolution capital expenditure that Powerco has allowed for in its CPP proposal; and
- Section 7 provides the conclusions of our analysis.

3 Appropriateness of service standards

3.1 We believe that the first issue listed, quality measures and standards, is a core concern and is appropriately listed first in the Issues paper. In setting out our view on this issue, we believe it helpful to explain that view in terms of the logic of DPP/CPP regulation.

3.2 Part 4 of the Commerce Act, 1986 requires that the Commerce Commission sets default price-quality paths (DPPs) for a group of regulated suppliers by a standardised low-cost approach, thereby economising on the resource cost of regulation for all concerned. Where a regulated supplier considers its DPP is unsatisfactory it may apply for a customised price-quality path (CPP) better suited to its specific circumstances.

3.3 Powerco has proposed an increase in the price path it was allotted under the DPP and a suspension of the quality standards it must comply with regarding planned outages.

3.4 The intention of the Part 4 regulatory framework is that when a regulated supplier submits a CPP proposal the Commission will review all relevant aspects of the regulated supplier's operations and plans. By definition, a CPP proposal advantages the supplier, and the quid pro quo is that the Commission has the opportunity to assess the supplier's overall efficiency and reset the price-quality path on the basis of that assessment. The Commission may set a CPP with a lower price path or more stringent quality standards than the DPP, if the review of the supplier's overall efficiency indicates that best achieves the objective of the review.

3.5 The Issues paper states the objective of the review as follows: "*Our review of Powerco's proposal is to ultimately satisfy ourselves that Powerco's proposal is in the long term benefit of consumers*". We note that the standard way to achieve satisfaction that expenditure (that will be recovered from consumers) is in the long-term benefit of consumers is to apply a cost-benefit analysis (CBA). Such a CBA would compare the costs and benefits that result from full approval of the CPP proposal based on a comparison of the "factual" with one or more appropriate "counterfactual(s)".

3.6 As specified in the Input Methodologies, a key criterion for the Commission's consideration of a CPP application is to what extent the proposal meets the "Expenditure Objective", defined as: *"[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

comply with applicable regulatory obligations associated with those services."

3.7 Thus, assessing the extent to which the proposal meets the expenditure objective requires deciding what are the *"appropriate service standards*" for that supplier. 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 but that should not crowd out consideration of what are the appropriate service standards.

3.8 The Input Methodologies do not specify how "*appropriate service standards*" are to be determined. In the case of a DPP determination, the quality standards are determined for each regulatory period as the Commission sees fit. Consistent with the low resource cost concept, the DPP quality standards to date have been anchored in actual historical performance over a rolling ten-year period[1]. Since the DPP quality standards are not (and cannot) be based on consideration of the cost versus quality trade-off, the DPP quality standards cannot be assumed to be necessarily optimal, that is to reflect the long-term interests of consumers.

3.9 Logically therefore, the Commission's CPP decisions need to be informed by reliable information (from the application, the verifier or other sources including Commission analysis) on what the efficient costs would be for a prudent non-exempt EDB in a similar position to the regulated supplier to deliver a range of service standard outcomes. Estimates of costs for a range of service standards are essential to identify the cost versus quality trade-off. Knowledge of that trade-off is essential to identify what level of quality standards the Commission should set in determining the CPP in the long-term benefit of consumers.

3.10 The decision on what are the appropriate service standards is critical in the case of the Powerco CPP proposal since Powerco justifies much of the proposed increase in expenditure as required to prevent a deterioration in quality standards. Crucially, it seems likely other suppliers will make CPP proposals on the same grounds and that consideration of the Powerco proposal will create a precedent. Thus, the determination of what are the appropriate service standards is an issue of major significance.

3.11 In considering this CPP proposal, which is justified by Powerco as required to prevent a deterioration in service standards, the analysis of the trade-off between quality standards and cost for the specific regulated supplier is appropriate and timely. Specifically, the relevant data is in the most part (and where it is not, should be) assembled in the application or the application process. As noted, such a CPP proposal is in practice the only opportunity for the Commission to obtain the information necessary to quantify, on a reasonably accurate basis, the trade-off between quality standards and cost.

3.12 We suggest the Commission should seize this opportunity to analyse the trade-off. This is not to suggest the verifier's report would have to be rewritten or that the Commission should have determined the appropriate service standards before the verifier undertook their analysis. Quite to the contrary, the efficient sequence of analysis is for the verifier to provide its report first. Once the Commission has the verifier's report it has verified information for the Commission to consider the trade-off between service standards and cost. That is the information the Commission needs to decide on the appropriate service standards. After the Commission has determined the appropriate service standards they become the basis for the Commission to use to assess and, if appropriate, to set the CPP.

3.13 The identification of the appropriate service standard is not a task that the Commission can delegate to the verifier. It is part of the definition of the expenditure objective. It is an important

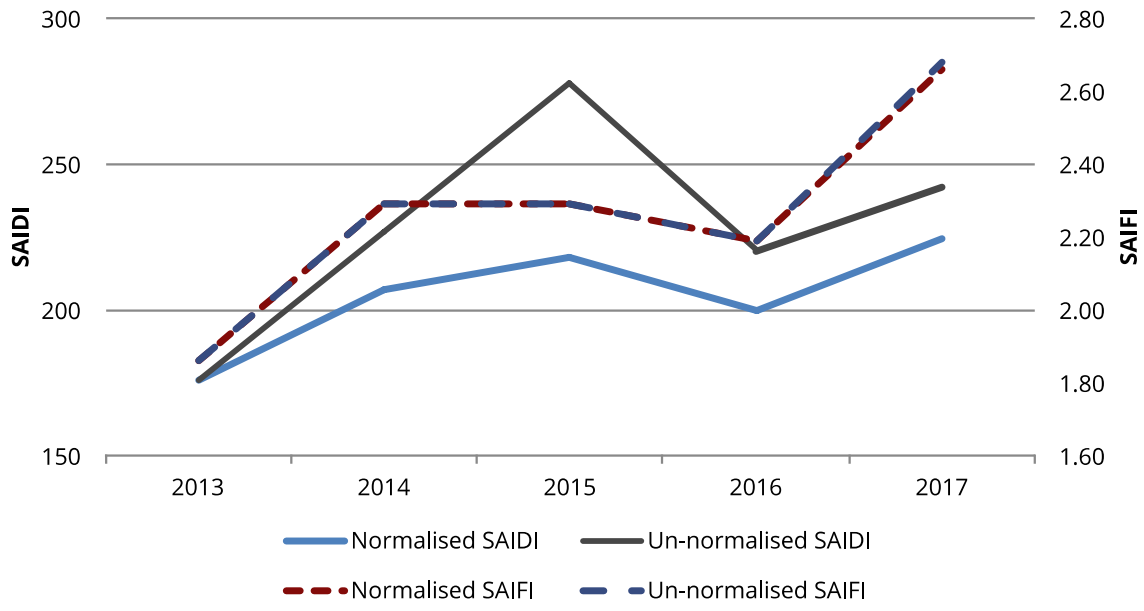
[1] Which include tolerance bands that incur financial benefits or costs and outer constraints that trigger regulatory breaches.

next step of the application process that the Commission, not the verifier, provides further information regarding a continuation of the DPP in order to determine the appropriate quality-service standard aspect of the objective. The verifier's role is to provide the detailed assessment required to enable the Commission to decide what service standards are appropriate and what expenditure satisfies the objective incorporating those service standards.

Part 3.1 Quality standards proposed by Powerco

3.14 The Commission highlights the verifier's analysis that the *"historical data shows a distinct trend of improving reliability"*. The verifier's inference that Powerco has shown an improving reliability trend is based on un-normalised data[2]. We understand that Powerco disputes the claim that reliability has been improving and puts forth historical trends (from 2005 to 2017) of normalised SAIDI/SAIFI. Figure 1 below provides Powerco's normalised and un-normalised SAIFI and SAIDI over the past five years. Normalised SAIDI and SAIFI have both slightly worsened over this period, although the verifier treats 2013 as a special year hence the difference in interpretation. Un-normalised SAIDI has worsened over the five-year period although when ignoring 2013 it has been flat to improving. Un-normalised SAIFI is identical to normalised SAIFI and has therefore also slightly worsened over the last five years. In summary, the true historical trend of Powerco's reliability is not immediately clear as it depends on the timeframe used, the measure of reliability, and the treatment of "special" years.

Figure 1: Powerco reliability (normalised vs. un-normalised SAIDI/SAIFI)



Source: TDB analysis based on data provided in Powerco's Application.

3.15 Whilst the historical trend of reliability is not in itself a determinant of future reliability it can act as an indication of the relationship between the level of spending and quality outcomes. Given the difference in interpretation of reliability trends (ie, Farrier Swier asserts reliability is improving whereas Powerco asserts it is worsening) it is recommended that the Commission be aware of the source of this difference, which may require analysing the issue more fully by weighing up

[2] Un-normalised SAIDI/SAIFI does not account for severe weather conditions prolonging outages.

the differences between normalised and un-normalised reliability and the timeframe of the trend considered (ie, is it a trend or just noise).

3.16 As part of the consultation required in preparing a CPP proposal, Powerco asked end-users for their views. Unfortunately, that consultation cannot serve as an adequate substitute for the Commission undertaking a cost-benefit analysis (CBA). One major aspect is the omission from the consumer consultation of the long-term pricing impact of the CPP proposal (the second issue listed by the Commission on page 17 of the Issues paper). That is discussed later in this report.

3.17 Powerco states it provided end users with estimates of four alternative price-quality paths. These options include:

a) a deterioration in service resulting from constraining expenditure (and prices) to DPP levels;

b) a small increase in investment and prices to uphold a minimum acceptable level of service (although a reduced service level than current);

c) a price increase required to maintain service standards at current levels (the proposed CPP investment); and

d) a price increase required to improve service performance to best practice in electricity distribution.

3.18 The end-user consultation took two forms. Firstly, Powerco conducted qualitative consultation, which involved one-on-one interviews and small focus groups. And secondly, Powerco conducted quantitative consultation, which involved survey questions designed to gauge a measurable price-quality trade-off amongst end-users. From the consultation information provided by Powerco, it is not clear that end-users were presented with explicit information about the difference in service levels, and the associated price paths, of each alternative. Instead, it appears that Powerco used more generic survey questions that were then interpreted to best reflect a particular option. For example, using 'willingness to pay' styled choice models, PwC (on behalf of Powerco) was able to put a value on an outage from the perspective of residential and business consumers.

3.19 It is not clear how explicitly Powerco outlined the price-quality trade-off of each of the four options. However, Powerco states that when end-users were presented with these four options they chose the stabilisation of current service performance with associated price increases as the preferred outcome. Unless end-users have identical preferences, the reported result can only be some form of weighted average response. The method for determining end-user preferences (based on the qualitative consultation) is not clear from the information Powerco has provided.

3.20 The judgment of Powerco that the CPP proposal fits the desired price-quality path of end-users appears to be based primarily (if not solely) on a subjective interpretation and aggregation of consumer consultation. Furthermore, the report that end-users consider the current service performance is the optimal trade-off between cost and quality may just reflect uncertainty, leading end-users to regard favouring the current performance as the lowest risk response rather than indicating it is the optimum position.

3.21 Given there was a very limited information base other than historic performance on which to set the DPP quality standards it would be a somewhat surprising coincidence if those standards are optimal. The extensive information explicit (or implicit) in the CPP proposal allows a much more in-depth consideration of what quality standards might be optimal than is feasible or appropriate for the DPP.

3.22 Technically, the qualitative cost-benefit argument that Powerco makes is that the current service level and the proposed price sit at an inflexion point representing the optimal price and service level. By stating that the proposed CPP is preferred by end-users, there is an implicit assertion that any deviation in price or quality would reduce consumer utility – ie, a higher price to achieve improved service levels (beyond the CPP) is considered too costly for the generated service improvements, and lower service levels associated with lower prices is considered unsatisfactory.

3.23 There is no evidence provided by Powerco that the price-quality trade-off of the CPP is in fact optimal (other than anecdotal evidence from qualitative consultation and a subjective interpretation of consumer surveys). Therefore, it is not clear that the CPP proposal does achieve end-user optimality relative to the other proposed options (or against other possible options not proposed). To ascertain the optimal price-quality trade-off, a quantitative cost-benefit analysis should be undertaken.

3.24 Given the significant quantitative end-user engagement undertaken by PwC on Powerco's behalf, it is unclear why Powerco has not attempted to utilise the price-quality trade-off estimates implied from the consumer surveys to conduct a proper quantitative cost-benefit analysis.

Part 3.2 Eastern and Western networks

3.25 There are considerable differences between the Eastern and Western Powerco networks in regard to the number of network faults as well as the severity of outages. The Western network has experienced a more rapid growth in network faults in the previous five years (whereas unplanned SAIDI is much more variable between networks across years – suggesting a less than clear relationship between network faults and length of outages).

3.26 Given there are considerable quality differences between the Eastern and Western networks it must be expected that there will be variation in the level of capex directed toward each network. Therefore, the quality outcomes generated from the increase in expenditure will vary dependent on the network. The price increases levied on customers should reflect the level of additional expenditure directed at their own network. Otherwise there will be cross-subsidisation between network users.

3.27 The geographic definition of a network should not be solely defined by ownership, ie, just because Powerco owns both the Eastern and Western networks does not necessarily imply that both networks should fall within the same price-quality path. It would be quite reasonable in the

context of a CPP for the Commission to impose separate price-quality paths for the two respective Powerco networks in order to reduce the likelihood of cross-subsidisation[3].

Part 3.3 Availability of data for a cost-benefit analysis

3.28 There are three key pieces of information required to undertake a cost-benefit analysis of the four possible price-quality paths (and associated expenditure trends) outlined by Powerco. The first piece of data is the cost of each option. Ie, the present valued capex/opex needed for each option and the associated increase in consumer prices. This data is for the most part provided[4]. Powerco has given estimates of the current DPP approach (ie, prices remain constant) as well as the expected increase for the proposed CPP. A better estimate of a continuation of the DPP will however require input from the Commission. Further costings are required for the remaining two options although this should not be difficult to obtain given they are simply deviations from the provided options. We do reiterate that the CPP level of expenditure should not just reflect a superior price-quality trade-off for consumers than a continuation of the DPP, instead it should maximise that trade-off (ie, other options need to be considered beyond the proposed CPP level of expenditure).

3.29 The second and third pieces of information necessary to complete a cost-benefit analysis are the consumer costs of outages, and the estimated outage levels under each option. In combination, this information will allow a quantification of the benefits associated with each option's service quality.

3.30 Powerco does have information on the consumer value of outages. PwC, on Powerco's behalf, was able to draw on the consumer survey results to interpret a residential and business "value of lost load" (VOLL). VOLL establishes the price that consumers put on an outage. PwC found that the average residential consumer has a VOLL of $16,400/MWh. The median business consumer has a VOLL of $39,300/MWh[5]. We refer to the median business VOLL as opposed to the mean because there is a steep distribution at the upper end of business consumers that disproportionately skews VOLL mean. In reality, large business consumers – ie, those that report a VOLL in excess of $500,000/MWh – will likely have a backup generation system; therefore, their true VOLL will be much lower than reported (as they are covered by the backup generation and it is a sunk cost). However, it is important that an accurate business VOLL is agreed upon because its choice will have a large impact on any cost-benefit analysis.

3.31 Powerco has provided some of the required estimates of quality under the proposed options. There are ten-year unplanned and planned SAIDI/SAIFI estimates for the proposed CPP investment. There are also unplanned SAIDI/SAIFI estimates under the status quo approach (although there is no sign of planned SAIDI/SAIFI estimates). There are, however, no estimates of planned or unplanned SAIDI/SAIFI for the two remaining options.

[3] This is a geographic network issue and not a relative pricing issue within a given network (which would be the responsibility of the Electricity Authority).
[4] Further discussion of the accuracy of the long-term price impacts is discussed in the following section.
[5] It should be noted that the business consumer results are highly volatile. The average business VOLL was $529,000/MWh – implying some very large VOLL's from a small proportion of business consumers. Also, there is large VOLL variation across industry type.

3.32 Powerco notes that estimating future SAIFI and SAIDI is difficult and involves significant uncertainty. However, without such information it is difficult to see justification for the increased investment. Furthermore, claiming uncertainty of quality standards is inconsistent with Powerco's claim (which underlies its entire CPP proposal) that a failure to increase investment will reduce service levels. If Powerco predicts a deterioration in service quality then it must be able to predict future SAIDI and SAIFI to a reasonably confident degree (otherwise how does it know quality will fall). So long as the SAIDI/SAIFI predictions are surrounded with appropriate caveats then there is no reason not to utilise them in a quantitative analysis of the optimality of a future price-quality path. Debates about the efficacy of SAIDI and SAIFI are a side issue in the context of the current review given that Part 4 requires the setting of a price-quality path and the use of those measures for that purpose has been the subject of past analysis.

3.33 SAIDI and SAIFI respectively measure the length and frequency of outages. This is readily convertible into MWh units, which can then be applied to the VOLL figures above.

3.34 The Powerco CPP proposal is, furthermore, that quality standards be suspended as regards planned outages but not as regards unplanned outages. This reinforces the conclusion that an analysis of the appropriate quality standards should be part of the consideration of the CPP.

3.35 The Powerco consultation does note that consumers prefer planned outages to unplanned outages[6]. The DPP quality standards take this into account with the duration and frequency standards including reducing the contribution of each planned outage by one half. 66 percent of business customers and 79 percent of residential customers would accept more planned power outages if they saved money on electricity. However, Powerco's proposal involves more planned outages and higher electricity prices.

3.36 The level of planned outages predicted in the CPP proposal is material in regard to consumer benefit. There is an issue as to whether the intensity of planned outages required by the effort to achieve within five years the goal Powerco has set itself, is justified and optimal. Although we have not sighted any quantitative information regarding consumer preferences between more frequent planned outages over a shorter period versus a longer period of less frequent planned outages, it seems plausible that the optimal approach lies somewhere between the two extremes. This could imply that spreading the additional expenditure over ten rather than five years might be beneficial. Powerco has provided a cost-effectiveness comparison between the CPP proposal and delaying expenditure until there is no alternative if the DPP quality standards are to be met. However, the relevant comparison is probably between a five and ten-year period under the work envisaged.

3.37 Powerco/PwC have estimated separate VOLL's for planned and unplanned outages (referred to as VOLL with or without communication). According to PwC's estimates, residential consumers appear to discount the cost of planned outages by approximately 40 percent of the cost of unplanned outages[7]. The two separate VOLL's should be used in a cost-benefit analysis to distinguish between the different costs imposed on consumers from planned and unplanned outages.

[6] 87 percent of business customers and 81 percent of residential customers agree that unplanned outages are worse than planned outages.
[7] Planned outage VOLL of approximately $10,700/MWh compared to $16,400/MWh VOLL for unplanned outages.

3.38 It is clear from the Powerco submission that there is considerable data available to the Commission/Powerco to undertake a proper cost-benefit analysis. Such an analysis is the standard non-subjective manner in which to ascertain the "appropriate service standards" and the optimal course of action for the consumer. With the data provided to date, it is broadly possible (if further information on a future DPP is provided by the Commission) to conduct a comparison between a continuation of the DPP approach and Powerco's CPP proposal. Preferably, however, further information would be provided for it to be possible to conduct a cost-benefit analysis of the remaining two options also.

3.39 There is some indication in the Issues paper that the Commission is open to tracking Powerco's performance on non-SAIDI/SAIFI metrics (such as reliability, safety or customer satisfaction). Given that Powerco wishes to relax its performance standards for planned outages, such tracking would be a welcome move. To properly set other performance metrics there needs to be performance incentives surrounding any new metrics. Also, the monitoring process needs to be transparent.

3.40 However, we recommend that the Commission does not grant Powerco full exemption from the planned SAIFI/SAIDI regulations that currently exist in order to protect consumers from undesirable outcomes with regard to quality. The Commission may see fit that it is preferable to simply increase the level of planned SAIFI/SAIDI that Powerco is able to amass before financial penalties are incurred (eg, by 50 percent). Such a ruling would acknowledge the practical reality that Powerco must necessarily increase planned outages in order to undertake the proposed investment, whilst simultaneously protecting consumers from excessively adverse quality outcomes.

4 Long-term pricing impact

4.1 As the Commission discusses in the Issues paper, approval of the CPP proposal would result in additional future price increases over and above the 5.7 percent real increase referred to in the application as the price increase in the CPP period.

4.2 The analysis of the long-term pricing impact of the CPP is unavoidably complex. In terms of complexity, we see this analysis as having a resemblance to the situation regarding assessment of airport pricing where the Commission found it was necessary to develop and publish its own relatively extensive analysis rather than the disclosure by the regulated parties being sufficient for interested parties to assess the position and implications. The comments that follow highlight some, but by no means all, of the aspects that would be involved in such an analysis.

4.3 The present value of the price increase must equal the present value of the expenditure increase (using a continuation of the DPP as the baseline). That is, every extra dollar spent by Powerco (above DPP levels) will be recovered through higher prices over the entire life of the assets. The price increase over the CPP period, however, will not equal the increase in total expenditure (capital and operating) due to the recovery of capital expenditure being spread out over the lifetime of the respective assets. Therefore, the full impact of the expenditure increase on consumer prices is not captured by looking only at the CPP period.

4.4 The Commission suggests that a quantification of these additional future price increases depends on a number of assumptions. This dependence is seen as complicating the task of assessing the impact of the CPP proposals.

4.5 The Commission is undoubtedly correct in highlighting the additional future price increases that would result from the CPP proposal and the significance of these increases. The additional increase is not confined to the regulatory period immediately after the five-year CPP. The price increase will continue over the life of the assets.

4.6 The impact of approval of the CPP proposal can be stated in a relatively straightforward way as follows: consumers will pay an additional amount (when present valued) equal to the present value of the increase in opex plus capex allowances compared to the opex and capex allowances if Powerco continued to be subject to DPP regulation (the status quo).

4.7 Powerco will recoup the increase in opex allowance from consumers during the CPP period whereas the increase in capex will be recouped over the (regulatory) lifetime of the assets created. This difference in the timing of the recovery from consumers is not a reason for treating the impact of the increase in capex as any less important than the impact of the increase in opex[8].

4.8 A common electricity industry standard for ranking investment opportunities is to estimate a unit cost (ie, cents per kWh) of the proposed investment. The unit cost estimate provides a present value estimate of all future expenditure associated with the proposal (divided by the present

[8]Para's 53 to 55 of the Issues paper seem to imply the impact of capex increase is less significant but perhaps that is not what is intended.

value of all future additional output (kWh) associated with the investment). A comparable approach could be applied to measure the price increase for consumers associated with the CPP. That is, the Commission/Powerco could estimate the present value of the additional CPP expenditure (over and above a continuation of the DPP) throughout the life of the additional assets. This will translate into the present value of the future price increases for consumers (presuming all costs are recovered by Powerco through higher prices).

4.9 The definition of the expenditure objective expressly requires that the impact over future regulatory periods be taken into account since it specifies the time period to be considered as "*during the CPP regulatory period and over the longer term*".

4.10 Thus, the most informative quantification of the price impact of approval of the CPP is the percentage by which the proposed expenditure allowance under the CPP exceeds the expenditure allowance that would be set if the supplier continued to be subject to DPP regulation[9]. The two expenditure allowances need to be expressed in the same present value terms.

4.11 The percentage, calculated as described, is the increase in allowances (relating to expenditure in the years of the CPP) that can be recouped from consumers. As noted, consumers will be providing a return on and of the increase in the RAB as a result of the CPP over the lifetime of the additional assets created. By payment of WACC each year on the amount yet to be recovered, the supplier will be compensated for the deferral of the recovery from consumers of the additional capex. Each year from the end of the CPP period for the lifetime of the additional assets created, the amount to be paid by consumers will be higher than it would be if Powerco had continued to be subject to DPP regulation. The incremental increase in the amount paid by consumers each year will be the increased depreciation and WACC on the increase in the RAB.

4.12 The calculation of this percentage requires the applicant to provide the present value amount of its proposed opex plus capex expenditure allowance. The Commission needs to provide an estimate of the present value of the opex plus capex that would be allowed under continuation of DPP regulation. Provision of this information is needed to make a proper "with and without" or in other words a "factual versus counterfactual" comparison.

4.13 The applicant is not in a position to provide an authoritative estimate of the present value of the opex plus capex that would be allowed under continuation of DPP regulation, particularly where the IMs have changed since the last reset as is the case at present. It is an important next step for the Commission to provide that counterfactual information.

4.14 The Commission has provided an estimate that the expenditure that would be allowed under the five years 2019-23 of the CPP proposal is 42 percent higher than Powerco's expenditure in the five years to the start of the proposed CPP period. (For this calculation the allowance and the actual expenditure are expressed in 2016 dollars and present valued at that date.) This is a "before and after" comparison whereas the most appropriate comparison is the "with the CPP" versus

[9] If the higher opex or higher capex result in higher opex or capex allowances in future regulatory periods that will result in yet further increases in the amounts consumers pay. This is discussed in the following section, which relates to the transition back to DPP regulation at the end of the CPP period.

"without the CPP" comparison noted above. The "before and after" comparison provides only a rough indication of the relevant percentage change[10].

4.15 One notable feature of a "with and without" comparison is the removal of a WACC effect. Because the time periods are identical in a "with and without" comparison, WACC is identical across both scenarios. This is not the case for a "before and after" comparison.

4.16 In summary, the estimated 42 percent ("before and after") increase may provide a rough indication of the order of magnitude of the impact on consumers of approval of the proposal but a proper quantification by the Commission, on a "with and without" basis, is required.

4.17 Powerco has, as required, provided an estimate of the real price increase (5.7 percent), which if applied at the start of the CPP period would recover the opex and the return that will be received on capex over just the CPP period. Such information is required for the Commission to consider matters such as price smoothing etc. Unfortunately, the price increase calculated (as described above) appears to have been treated as an appropriate measure of the impact on consumers of approval of the CPP proposal. It cannot, however, adequately serve that purpose for the reasons explained above and the actual price impact will likely be significantly higher.

4.18 Given that the consumer consultation has been based on a 5.7 percent real price increase as the indicator of the cost impact on consumers of the proposal, it might well be that respondents would change their responses if they understood the full price impact. This reinforces the case for the Commission to undertake a CBA using the willingness to pay information that has been collected. That information is not affected by the possible misinterpretation of the percent real price increase.

Part 4.1 Transition back to a DPP

4.19 Regulation of Powerco will revert to DPP regulation at the end of the five-year CPP period unless Powerco makes an application for a further period of CPP regulation. Powerco's revenue cap and expenditure during the CPP period will be much higher than it would have been under DPP regulation and seems highly likely to result in a higher revenue cap for the following and subsequent DPP periods. This pricing impact of a CPP on subsequent DPP regulation of Powerco (along with any quality standard changes) is likely to have a material impact on the effects of the CPP decision on consumer welfare.

4.20 The Commission will need to take into account the likely follow on effects of the current CPP decision in order to meet the CPP review objective which the Commission has defined as *"Our review of Powerco's proposal is to ultimately satisfy ourselves that Powerco's proposal is in the long term benefit of consumers."*

4.21 The Commission asserted, in its Orion decision, that it has unfettered discretion over the starting price for the DPP following a CPP back (subject to respecting the IRIS IM), and it is understandably reluctant to constrain its discretion a long way ahead of the relevant decision time.

[10] The assumptions regarding WACC and other parameters exogenous to the proposal need to be aligned.

4.22 The objective that the Commission has itself set for this CPP review as stated above, however, requires the Commission to form a view on the likely effect of the approved CPP on the subsequent DPP starting price decision. In order for interested parties to participate appropriately in the consultation on the draft CPP decision, they would need to know the Commission's view. Provision of this view will not of course bind the Commission to any future Powerco DPP starting-price decision.

4.23 The Commission illustrates the importance of this issue when it highlights that the 5.7 percent (sometimes quoted as the price increase, in real terms, resulting from full approval of the Powerco proposal) would effectively have to be followed by a further price increase at the start of the subsequent period. This further increase is necessitated because the RAB at the end of the CPP period will be higher than the average RAB during the period, which is the basis on which the 5.7 percent real increase has been calculated.

4.24 If the revenue cap for the DPP period is set on the basis reflective of capex during the CPP period, then there would necessitate yet further real price increases during that DPP period to accommodate the further increase in the RAB resulting from the higher capex.

5 Asset health and criticality

5.1 The fourth issue the Commission have raised for discussion concerns Powerco's asset-management plan. Specifically, is Powerco's planned management of asset health and criticality optimal for consumers in deciding the required capex over the CPP period.

5.2 This section addresses some points we consider the Commission should take into account, including the uncertainty over future demand forecast; the lack of a clear counterfactual in the asset-health modelling clouding the change in asset-health between the proposed CPP and a business-as-usual outcome, and concerns the verifier has raised with regard to Powerco's asset-management plan.

Part 5.1 Demand forecast uncertainty and criticality

5.3 The electricity distribution market is entering a period of increased uncertainty given the potential disruption that could occur as a result of new technologies such as new forms of distributed generation, enhanced batteries and electric vehicles. Therefore, there is an understandable level of doubt to be had over future demand forecasts for Powerco's network. The proposed capex Powerco has put forth under the CPP may turn out to be for demand that does not eventuate. Therefore, the capex undertaken by Powerco should take into account this uncertainty whilst understanding the immediate need for upholding network criticality. It may be prudent for Powerco to withhold some capex until there is greater certainty of future network demand.

5.4 In the absence of an asset-criticality framework it is difficult to determine which assets are an immediate priority and which can be relied upon to uphold the integrity of the network until the likelihood of future demand is better understood. Furthermore, the Commission's decision with respect to Powerco's CPP proposal will be precedent setting. Therefore, it is 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.

5.5 There is also some concern that the large increase in capex over the five-year CPP period is hurried due to the time-rigidity of the CPP/DPP model. A more cost-effective investment approach, that maximises the price-quality trade-off for consumers, may entail a longer investment timeframe (ie, the proposed capex is extended over a longer period than the five-year CPP). However, because Powerco would (by default) fall back onto a DPP after the CPP period is complete, Powerco may feel as though it has to pack in all the investment increases into the CPP period or risking not being able to undertake it in the future (without the costly exercise of applying for another CPP). If this is the case, the consumer is not receiving an optimal price-quality outcome.

Part 5.2 Asset-health modelling

5.6 Powerco's asset-health modelling projects the overall composition of its asset health in 2027 under three scenarios:

a) current asset health;

b) planned renewals under the proposed CPP investment; and

c) a "do-nothing approach".

5.7 Unfortunately, there is no modelling of the projected asset-health under the DPP investment path, so the appropriate counterfactual for assessing the CPP is missing. Without the appropriate counterfactual, it is difficult (if not impossible) to identify the gains in asset-health from the proposed increase in capex. Comparing asset-health under the CPP proposal (in 2027) with the current level of 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 (the only temporally identical counterfactual provided) is also misleading, as it does not compare the CPP with a realistic outcome. The projected asset-health under the DPP should be presented to complement the modelling under the CPP.

5.8 One observation from the limited asset-health data provided is that there is a considerable divergence between the asset-health levels projected under the CPP and the "do-nothing" approach. There are, however, much smaller differences between the projected levels of asset-health under a CPP and current asset-health levels. This supports Powerco's key assertion that the proposed investment is preventative and designed to stabilise the quality of the network as opposed to drastically improve it. In order to confirm this, however, there needs to be a DPP counterfactual.

Part 5.3 Asset-management plan

5.9 The limited counterfactual data for the proposed options highlights a lack of transparency with regard to investment selection. There may be some concern from the Commission that the choice of investment by Powerco does not best represent the optimal outcomes for consumers.

5.10 The verifiers report can also be read as implying that Powerco's asset management practices are below a desirable standard. For example, the verifier states that Powerco is on an *"asset management journey"* and that *"asset management practices in some cases do not appear adequate to meet the expenditure objectives for efficiency"*.

5.11 Further, the verifier indicates that Powerco's current assessments of some assets (such as wooden poles) are *"conservative by nature"* which therefore result in premature replacement. The premature replacement of assets will result in an unnecessary increase in prices for consumers.

5.12 The concerns about Powerco's asset management raised by the verifier highlight there may be a case for better information and transparency about Powerco's asset management practices before the Commission proceeds with the full scope of the CPP application.

6 Network evolution

6.1 As described in the Issues paper, Powerco is proposing to increase its network-evolution expenditure by 370 percent when compared to the previous five years. The Issues paper notes the verifier suggests provision of 55 percent of the proposed amount.

6.2 Given the monetary amount proposed is $18.1M; the significant issue is not so much the dollars but rather the network-evolution strategy itself.

6.3 As discussed earlier in this report, a CPP proposal by definition potentially advantages the supplier, and the quid pro quo is that the Commission has the opportunity to assess the supplier's overall efficiency and reset the price-quality path on the basis of that assessment. As part of the assessment, it is appropriate for the Commission to ask the supplier to explain its views and strategy regarding the evolution of its network.

6.4 There is a relatively widely held view that technological innovations, particularly in regard to batteries, may complicate issues regarding the lines versus generation/retail demarcation. The views and strategies of EDBs regarding network evolution may therefore have significant ramifications for the Commission's regulation of the sector. It would be unfortunate if the Commission did not take the opportunity of this CPP to examine Powerco's approach.

6.5 Thus, rather than treating the network evolution aspect of the proposal as simply a matter of deciding on a dollar allowance, the more appropriate approach would be for the Commission to pose a set of questions to the supplier and to consider those responses in formulating its decisions on the CPP. To put this into context, one underlying issue is what activities should be treated as falling within the regulated service. Absent a specific determination by the Commission, it is not obvious how Powerco is constrained in the extent to which it seeks to include capital expenditure that relates to network evolution in the RAB.

6.6 It should be acknowledged that Powerco has said its current strategy does not involve investment "beyond the meter". However, the proposal includes a plan to invest in 35,000 ripple-control receivers in Tauranga, which is "beyond the meter". Ripple investment may be justified if it means deferring larger network upgrades and the deferment is beneficial to consumers (ie, in a CBA analysis). However, it would be prudent to ensure that network-evolution capex that is included in the RAB is confined to areas that do not encroach on services that could be supplied by competitive markets, as otherwise more competitive suppliers may be squeezed out of the market.

6.7 Confirmation of the above would be beneficial for the Commission and interested parties. The process should allow interested parties to comment on Powerco's responses.

7 Conclusions

7.1 This paper analyses four of the key issues raised by the Commission in relation to Powerco's CPP application. Those issues are:

a) quality – issues relating to Powerco's proposed quality measures and standards;

b) the long-term pricing impact of Powerco's CPP proposal;

c) asset health and criticality and its impact on capex forecasts; and

d) network-evolution capex.

7.2 The key concerns raised by this report, which fall into the respective categories above, can be summarised as follows:

- there is a need to show that the proposed increase in capex and opex under the CPP proposal will optimise the price-quality trade-off for consumers. The DPP quality standards are based on historical performance over a rolling ten-year period and thus are not (and cannot) be based on consideration of the cost versus quality trade-off and cannot be assumed to be necessarily optimal - that is to reflect the long-term interests of consumers;

- there is a need to provide a true counterfactual (ie, the DPP over the same five/ten-year period) to compare the implicit factual (ie, the proposed CPP) with. Without an appropriate counterfactual, it is difficult if not impossible for the Commission to determine the optimality of the CPP proposal and deliver a price-quality path that maximise outcomes for end users.

- we show that Powerco has gathered considerable data which enables a cost-benefit (NPV) analysis to be undertaken. Where further data is required, it should be relatively straightforward to acquire, especially if the Commission provides further information regarding the likely situation under a continuation of the DPP;

- as the Commission notes, the long-term pricing impact on end users is understated by the Powerco submission. Powerco states there will be a 5.7 percent initial real price increase. This estimate does not capture the ongoing price increase in subsequent years as a result of consumers paying for the increased capex over the expected lifetime of the asset (whereas opex is paid for in the year it is incurred);

- the Commission provides present value estimates of the increase in capex and opex, showing there is a 42 percent increase in expenditure (in 2016 dollars) compared to the five years preceding the CPP period. However as is discussed, this is a "before and after" estimate rather than a "with and without" estimate;

- end-user consultation by Powerco/PwC was based on the understated (5.7 percent) price increase of the CPP proposal. The understatement of the long-term pricing impact on consumers reduces the validity of the end-user consultation Powerco has undertaken. The use of a CBA would overcome this validity problem;

- there is a need to provide an asset-criticality framework. Without such, it is difficult to assess the urgency of the proposed expenditure increase in the context of a changing electricity environment (ie, with technological changes such as local battery storage and electric vehicles) where future demand is uncertain;

- the appropriate asset-health counterfactual (ie, on the basis of the DPP investment path) needs to be provided to compare the CPP proposal with so the rate of asset-health stabilisation/improvement under a CPP can be ascertained; and

- the Commission needs to make an informed decision as to the extent of capital expenditure granted for network evolution and preferably ensure that proposed network evolution capex does not encroach on competitive markets. The decision will set a precedent for future CPP applications and the Commission's decision should reflect a strategic approach.

7.3 In addition to addressing four of the key issues in the Commission's Issues paper, this submission emphasises the importance of the Commission executing its full role in the CPP application process. The Commission states in the Issues paper that:

- "*We consider that it will be appropriate to rely on the verifier's findings where we have critically analysed the verification process and concluded that it has been robust. Ultimately the final decision on the CPP rests with the Commission.*"

7.4 There is a risk that this comment could be misinterpreted. In particular, the verifier has naturally focussed on the information provided by Powerco and the verification of that information. The Commission's review, however, requires that the Commission bring to the analysis information that only it, rather than Powerco or the verifier, can generate.

7.5 Specifically, as with other Commission decisions, the CPP review requires a comparison of the proposal as the "factual" with the appropriate "counterfactual", namely the position if Powerco continued to be subject to DPP regulation. This "with" and "without" comparison is essential for the Commission and consumers to be able to gauge the consequences of the proposal. The Issues paper provides a "before and after" comparison but it would be preferable to substitute this with a "with and "without" comparison. Only the Commission (not Powerco or the verifier) can provide an authoritative estimate of the true counterfactual. Only the Commission, furthermore, can decide what are the "appropriate service standards" for the purpose of the expenditure objective against which the CPP proposal is to be tested under the CPP Input Methodologies.

7.6 This type of CPP proposal is, in practice, the first opportunity for the Commission to obtain the information necessary to quantify the trade-off between quality and cost. The identification of the appropriate service standards is not a task that the Commission delegates to the verifier. It is

part of the definition of the expenditure objective. It is the Commission's responsibility, and not the verifier's, to determine the objective. The verifier's role is to provide the detailed assessment required to enable the Commission to define the objective with regard to quality.

7.7 The information that only the Commission can provide as an input into its review also includes an assessment of the results of the transition back to a DPP at the end of the CPP period. That assessment is relevant to an assessment of the long-term pricing effects of the CPP.

7.8 Crucially, the form in which information is requested when a CPP application is being made does not limit the Commission's analysis. As an example, Powerco has provided an estimate of the price increase that, if applied at the start of the CPP period, would recover the opex and the return on capex that will be received in the CPP period. That information is required for the Commission to consider such matters as the case for price smoothing.

7.9 That price increase estimate, however, does not reflect the overall price impact on consumers if the CPP goes ahead. Consumers will be providing a return on and of the increase in the RAB as a result of the CPP over the lifetime of the additional assets created. By payment of the WACC each year on the amount yet to be recovered, the supplier will be compensated for the deferral of the recovery from consumers.

7.10 The assessment of the effects of the CPP proposal and of the trade-off between quality and cost needs to take full account of the effects in future periods as described. This is information that the Commission can provide. It would be a misinterpretation of the CPP review process if the fact that Powerco is required to provide an estimate of the starting-price adjustment was seen as the end of the price-impact analysis.