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Powerco's customised price-quality path

Final decision

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Associated documents

	Reference	Title
28 March 2018	1178-2560	<i>Powerco Limited Electricity Distribution Customised Price-Quality Path Determination 2018 [2018] NZCC 5</i>
28 February 2017	1178-2560	<i>Electricity Distribution Services Input Methodologies Determination 2012 (consolidating all amendments as at 28 February 2017)</i>
9 July 2015	978-1-869454-593	<i>Electricity Distribution Services Default Price-Quality Path Determination 2015 (consolidating all amendments as of 9 July 2015)</i>

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Executive summary

Purpose of this paper

- X1 This paper sets out our decision on the customised price-quality path (CPP) to apply to Powerco Limited (Powerco) from 1 April 2018 to 31 March 2023.

Powerco applied for a customised price-quality path

- X2 Powerco owns and operates the second largest electricity distribution network in New Zealand. Its network provides electricity lines services to over 330,000 consumer connections in the major centres of Tauranga, New Plymouth, Palmerston North and their surrounding regions.
- X3 As the monopoly supplier of distribution services, Powerco is regulated under Part 4 of the Commerce Act. We set the maximum revenues it can earn from its consumers and set the minimum required standards its services must meet under a price-quality path. Powerco is currently subject to the default price-quality path (DPP) set in 2014 which applies to 16 electricity distributors across New Zealand.
- X4 Powerco states that under the DPP it has lifted its investment by almost 60% over the past five years, but unless further investment is made, its network performance will deteriorate.¹ In response, it submitted a CPP application to us on 12 June 2017 seeking an increase in revenue.

Key features of Powerco's proposal

- Powerco proposed to spend \$1.32 billion over the five-year CPP period from 1 April 2018 until 31 March 2023, compared with \$937 million for the previous five years.
- Powerco requested that we allow it to recover this expenditure from its customers via an initial increase in revenue of 5.7%, after which it would be indexed to inflation for the remainder of the CPP period.
- Powerco also proposed that the quality limits associated with unplanned interruptions should be maintained at historical levels, and that planned interruptions should be removed from its quality standard so as not to constrain delivery of its investment programme.

¹ Powerco "Customised price-quality path: Main proposal" (12 June 2017), p ii

X5 Powerco's proposal explains that it is designed to address three main issues facing its network:²

X5.1 Safety and reliability concerns relating to deteriorating performance of its assets;

X5.2 Ensuring sufficient capacity and supply security to support population growth in its regions;

X5.3 Development of new technology and service offerings to keep pace with network evolution.

Our final decision

X6 Our decision applies a customised price-quality path to Powerco for the period 1 April 2018 to 31 March 2023.

Key features of our final decision

Price path

- \$1,273 million in total expenditure is allowed for, including \$825 million capex and \$447 million opex.
- Maximum allowable revenue will increase 4.5% in the first year of the CPP and then in line with inflation.³

Quality standards

- Powerco is subject to separate quality standards for planned and unplanned interruptions:
 - For unplanned interruptions, we have set limits that require Powerco to reduce the frequency of interruptions by 5%, and the duration of interruptions by 10%, by the end of the CPP period
 - For planned interruptions Powerco is required to comply with a limit based on its own forecasts with a margin added to provide some flexibility. We have also specified a 5 year cap to provide a formal incentive for Powerco to manage any year it exceeds the annual limit under the 2 out of 3 compliance scheme.

Annual Delivery Report

- Powerco is also required to provide a CPP annual delivery report which will detail its progress on delivering its work programme and give reasons for any areas where it has not delivered as expected.

² Powerco's full proposal can be found at: <http://comcom.govt.nz/regulated-industries/electricity/cpp/cpp-proposals-and-decisions/powercocpp/>

³ In practice, Powerco may not recover all of this revenue increase in the first year of the CPP. The impact of our decision on prices is discussed further in Attachment I.

- X7 We estimate this will mean the typical residential consumer on Powerco’s network will pay an additional \$2.70 per month on their monthly electricity bill to fund the increase in expenditure.⁴
- X8 In the years following the CPP period, we expect the capex investment will result in further increases to prices as the full value of the investments enters the regulatory asset base. We estimate this will increase allowed revenues by around 10% under certain assumptions. This estimate is subject to some uncertainty as it requires forecasting a number of variables, including those dependent on market conditions, and Powerco’s actual and forecast expenditure.

Changes from our draft decision

- X9 Our final decision remains largely unchanged from our draft decision.
- X10 We received a number of submissions throughout our process which we have taken into account in each step of our decision making. We found these submissions valuable and they helped inform our judgements throughout. We thank those parties for their submissions.
- X11 A summary of the key changes from our draft decision is set out below.

Summary of key changes from our draft decision

Price path

- Increase in opex allowance of \$1.5 million for the network evolution programme, which is consistent with Powerco’s historical spend in this category. While Powerco has been unable to sufficiently demonstrate the benefits of this programme, a number of projects identify issues which we consider will need solutions in time and we consider it prudent for Powerco to keep developing its thinking in line with its previous spend.

Quality standards

- A margin has been added to the targets for the planned quality standard. This reflects the fact that Powerco’s forecasts, as the basis for the planned standard, are subject to some uncertainty.
- An aggregate assessment of planned interruptions during the CPP period has been added to the planned quality standard. This is to provide a formal incentive for Powerco to manage any year it exceeds the annual limit under the 2 out of 3 compliance scheme.

Annual Delivery Report

- Minor refinements to reporting categories. This is to better align the reporting requirements with how Powerco records information.

⁴ This figure has been calculated assuming that the other components of a consumer’s electricity bill, such as generation and retail charges, remain the same. A consumer may see a decrease or further increase in their overall electricity bill if these other components were to change.

Our evaluation of Powerco's proposal

- X12 Our decision is based on our evaluation of Powerco's proposal against the evaluation criteria in our input methodologies. In particular, we have considered whether the operating expenditure (opex) and capital expenditure (capex) proposed by Powerco reflects the efficient costs that a prudent supplier of electricity lines services would require to meet or manage expected demand for its services, at appropriate service standards.

Powerco's proposal addresses specific needs and an uplift in expenditure is justified

- X13 We consider Powerco has largely satisfied our evaluation criteria for the major elements of its proposal regarding safety and reliability; and capacity and supply security needs.
- X14 Our final decision is reflective of this, accepting 96% of the expenditure allowance Powerco proposed. This is higher than the 91% verified by the Verifier. We have been able to provide for this higher amount by seeking further information from Powerco and undertaking additional analysis.
- X15 We have not provided for \$55m of the expenditure that Powerco proposed as we were not satisfied this expenditure met the evaluation criteria. Almost one third of this related to the third element of Powerco's proposal, its network evolution programme.

We have set different quality standards to what Powerco proposed

- X16 Our final decision on quality standards differs from that proposed by Powerco, and we acknowledge that Powerco has not targeted an improvement in unplanned interruptions as part of its CPP proposal. However, we consider the substantial asset investment programme targeted at safety and growth will have consequential improvements in reliability as, among other things, new assets outperform the ones they have replaced.

We have considered consumer preferences in reaching our decision

- X17 In considering appropriate service standards, Powerco's customers have expressed a range of preferences regarding matters such as reliability, safety, and prices. Customers indicated that both price and service quality are important, and that deteriorating service levels should be avoided.
- X18 We have considered these preferences in making our decision, as well as our role in keeping electricity affordable. We have also considered submissions on our draft decision that suggested an improvement in quality would over-ride consumer preferences, and they would prefer expenditure to be reduced in order to keep down costs to consumers.

- X19 In our view, an increase in allowed expenditure and a modest improvement in quality is appropriate for the following reasons:
- X19.1 A significant proportion of Powerco's CPP programme is required to address risks around safety and hazard control, and to support expected demand growth. In our view, it would not be appropriate to curtail this type of expenditure in an attempt to maintain reliability at current levels.
- X19.2 There are practical difficulties in fine-tuning expenditure across a substantial and varied investment programme to meet specific quality outcomes. This is particularly the case where investment is directed at multiple objectives and is lumpy, which increases the risks that actual levels of service quality will exceed or fall short of the targeted level of quality. On balance, for this decision, we consider it better to allow for a modest improvement in quality than risk a deterioration in quality for consumers.
- X19.3 The development of an asset criticality framework that Powerco is presently undertaking will improve the understanding of these implications by allowing the business to direct expenditure to the key assets whose failure is likely to have the highest consequential effect on customers. In the absence of an asset criticality framework, we do not have the information needed to assess whether the benefits of additional expenditure (in terms of quality and other outputs) exceed the costs, nor whether the marginal expenditure is being directed to achieve the highest net benefits.
- X19.4 We consider that those programmes that could be specifically singled-out as driving reliability improvements – such as the growth and security reliability programme (\$17 million) – are a small proportion of expenditure and, in our judgement, represent an effective approach to managing faults and delivering reliability benefits over the long term. If Powerco's allowed expenditure were to be reduced as a consequence, there is a risk that Powerco would not proceed with such projects where the gains in reliability are more valuable than the incremental costs.
- X19.5 Powerco's consumers indicated a range of preferences regarding matters such as reliability, safety and prices. According to Powerco's consumer consultation, there was limited support by its customers for improved reliability if this comes at a higher cost. However, Powerco also found that its customers want and value a resilient network with fewer outages, and that avoiding a deterioration in quality is important. Given the value that Powerco's customers place on avoiding a deterioration in quality, as well as the difficulty of fine-tuning lumpy expenditure in order to target specific quality outcomes, our view is that allowing for a modest improvement in Powerco's quality standards is reasonable.

X19.6 Retaining a modest improvement in unplanned interruptions as part of the quality standard will provide stronger incentives on Powerco to fully implement the CPP work programme. Any reduction or deferral of investment by Powerco that has been provided for as part of our decision would risk Powerco breaching the quality limits that will apply over the CPP period.

What we expect from Powerco over the CPP period

- X20 In making our decision, we are confident that Powerco's plans are prudent solutions that will allow it to stabilise network performance and meet the electricity demands of its consumers. Importantly, Powerco's plans include investments to drive improvements in its asset management practices. These improvements should yield further benefits for Powerco and its consumers, and minimise the lifetime cost of providing services to consumers.
- X21 In providing for the level of expenditure we have, we expect Powerco to deliver on its plans over the course of the CPP period, so the benefits of the proposed investments are realised for consumers. To this end, the consumers who are funding the investments should be aware of progress towards delivery. To ensure transparency around this, we have also introduced a separate requirement for Powerco to provide a CPP Annual Delivery Report, using our powers under s 53ZD of the Commerce Act. Powerco is also required to convene an annual stakeholder event, in each of its Eastern and Western regions, to present the report and progress of its planned investments.

Chapter 1 Introduction

Purpose of this paper

1. This paper sets out our decision on the customised price-quality path (CPP) to apply to Powerco Limited (Powerco) from 1 April 2018 to 31 March 2023.

Powerco is subject to price-quality regulation by the Commission

2. Powerco owns and operates the second largest electricity distribution network in New Zealand. Its network provides electricity lines services to over 330,000 consumer connections in the major centres of Tauranga, New Plymouth, Palmerston North and their surrounding regions.

Overview of Powerco's network



3. As the monopoly provider of electricity distribution services in these regions, Powerco is regulated by the Commission under Part 4 of the Commerce Act.⁵

⁵ <http://www.comcom.govt.nz/regulated-industries/fact-sheets-2/part-4-of-the-commerce-act/>

4. Part 4 requires us to set a price-quality path for Powerco to limit the revenues it can earn and set minimum standards for the quality of the services it supplies. We last set a price-quality path for Powerco in 2014 as part of the regular default price-quality path (DPP) which we set for electricity distributors across the industry.⁶
5. Part 4 allows for suppliers on the DPP to apply for a CPP to better meet the individual circumstances of their businesses. While an applicant proposes a CPP, we must determine the appropriate CPP for the supplier.

Powerco proposed to increase its revenue and change its quality standards

6. On 12 June 2017, Powerco submitted a CPP proposal seeking to increase its allowable revenue and alter its minimum quality standards for the five-year period from 1 April 2018.⁷

Key features of Powerco's proposal

- Powerco proposed to spend \$1.32 billion over the five-year CPP period from 1 April 2018 until 31 March 2023, compared with \$937 million for the previous five years.
- Powerco requested that we allow it to recover this expenditure from its customers via an initial increase in revenue of 5.7%, after which it would be indexed to inflation for the remainder of the CPP period.
- Powerco also proposed that the quality limits associated with unplanned interruptions should be maintained at historical levels, and that planned interruptions should be removed from its quality standard so as not to constrain delivery of its investment programme.

⁶ Default/customised price-quality regulation is a type of regulation under Part 4 of the Commerce Act 1986 that applies to 17 electricity distribution businesses (EDBs) across New Zealand. The remaining 12 EDBs across the country are exempt from default/customised price-quality regulation as they meet the 'consumer-owned' exemption criteria under the Act. More information on these criteria – including the 12 EDBs that are currently exempt – can be found at: <http://www.comcom.govt.nz/regulated-industries/electricity/electricity-archive/electricity-default-price-quality-path-archive/treatment-of-consumer-owned-electricity-distribution-businesses/>

⁷ Powerco's proposal and supporting documents can be downloaded at the following link: <http://www.comcom.govt.nz/regulated-industries/electricity/cpp/cpp-proposals-and-decisions/powercocpp/powerco-customised-price-quality-path-proposal/>

7. Powerco explains its proposal is designed to address three main issues facing its business.⁸

- **Safety and reliability:** In recent years, we have seen clear and material degradation of our network operating position and condition, evidenced across a range of leading indicators (e.g. asset health). In-service asset failures are rising, and condition is degrading across a range of asset fleets, particularly in our overhead network. This requires us to focus on the underlying condition of our network (rather than focusing on short-term reliability alone) and to maintain and replace equipment in a prudent and timely way.

- **Supporting communities:** We play a critical role in facilitating economic growth in the regions we serve. We support diverse communities across the north island of New Zealand by providing a secure, cost-effective and reliable electricity supply. The communities we serve continue to experience strong economic growth driven by population growth, and enhanced commercial and industrial activity. To meet the needs this poses, we have to increase our levels of investment to provide sufficient capacity, and appropriate supply security.

- **Network evolution:** New technology and service offerings combined with increasing consumer willingness to take control of their energy options are leading to changing asset management requirements. Opportunities for more cost-effective network solutions are also emerging. To stay abreast of these developments, and to ensure the continued stability and efficiency of our network, we need to invest in trials and pilot schemes of new solutions. This will be key to ensuring the long-term interests of customers.

8. On 7 August 2017 we accepted Powerco's CPP application as having met our CPP requirements, and were required to set it a CPP within 150 working days from that date (by 29 March 2018).⁹

Our final decision follows a substantial process to review Powerco's proposal and seek views from interested persons

9. Powerco proposed a significant uplift in expenditure as part of its CPP proposal, including a substantial capex programme, the cost of which is recovered from consumers over the lifetime of the assets. This means that setting a CPP in line with Powerco's proposal would result in higher costs to consumers in their monthly electricity bill for the foreseeable future.
10. To ensure these costs are justified and investments are in the long-term interests of consumers, we have set requirements for Powerco to test its proposal with its consumers and have it verified by an independent expert (the Verifier) appointed with our agreement.

⁸ Powerco "Customised price-quality path (CPP): Main proposal" (12 June 2017), p ix.

⁹ Commerce Act 1986, s 53T(2).

11. We then reviewed the proposal ourselves, using staff with extensive engineering experience, and our own expert consultant to test the work of the Verifier and provide additional advice as required. During this review process we sought views from interested persons on Powerco’s proposal, and an early summary of issues we identified to prepare our thinking in the development of our draft decision.
12. Our draft decision was published on 17 November 2017, where we sought views from interested persons on the CPP we proposed to apply to Powerco. We thank submitters for their views – they have tested our thinking throughout the CPP process and helped inform the final decision set out in this paper.

Key steps in Powerco’s CPP process	
• Independent verifier is appointed with agreement of the Commission	December 2016
• Powerco undertakes consultation with consumers as part of the development of its proposal ¹⁰	January – March 2017
• The Verifier reviews Powerco’s proposal and provides its opinion in a final report ¹¹	March – June 2017
• Powerco submits its proposal to the Commission	June 2017
• The Commission’s expert consultant, Strata Energy Consulting, provides its opinion on the Verifier’s report ¹²	June 2017
• The Commission publishes an Issues paper seeking views on Powerco’s proposal and key issues it has identified ¹³	August 2017
• The Commission publishes its draft decision on the CPP to apply to Powerco seeking views of interested persons ¹⁴	November 2017
• Submissions are received from interested persons	December 2017
• The Commission publishes its final decision on the CPP to apply to Powerco	March 2018

¹⁰ Powerco “Customised price-quality path (CPP): Consultation report” (12 June 2017).

¹¹ Farrier Swier “Powerco’s customised price path application: Final verification report for Powerco” (7 June 2017).

¹² <http://www.comcom.govt.nz/regulated-industries/electricity/cpp/cpp-proposals-and-decisions/powercocpp/powerco-customised-price-quality-path-draft-decision/>

¹³ Our Issues paper and submissions in response are available at: <http://comcom.govt.nz/regulated-industries/electricity/cpp/cpp-proposals-and-decisions/powercocpp/>

¹⁴ <http://www.comcom.govt.nz/regulated-industries/electricity/cpp/cpp-proposals-and-decisions/powercocpp/powerco-customised-price-quality-path-draft-decision/>

Structure of this paper

13. The remainder of this paper is split into three key parts and sets-out our final decision on the CPP to apply to Powerco from 1 April 2018 to 31 March 2023:
 - 13.1 **Chapter 2: Our final decision** sets-out the prices, expenditure forecasts and quality standards that our final decision provides for. It also acts as a road map pointing to where more detailed reasons for each of the final decisions can be found in the paper.
 - 13.2 **Chapter 3: Our evaluation** explains the high level framework we applied to evaluating Powerco's CPP proposal, and the approach we took to making our final decision.
 - 13.3 **Attachments A-L** provide further detail of our decisions set-out in Chapter 2.
14. We have taken all submissions into account in reaching our final decision. We have not specifically addressed all comments from submissions in this paper (to do so would not have been practical), although we have addressed key points from submissions where necessary.

Chapter 2 Our decision

Purpose of this chapter

15. This chapter sets out our final decision on Powerco's CPP including:
 - 15.1 expenditure allowances that we have provided for;
 - 15.2 Powerco's price path – the maximum revenues that Powerco will be able to recover for the period 1 April 2018 to 31 March 2023;
 - 15.3 quality standards that will apply to Powerco; and
 - 15.4 an Annual Delivery Report that Powerco will be required to provide.
16. It also explains where further discussion of these final decisions can be found in this paper.

Summary of our final decision

Key features of our final decision

- We have provided for total expenditure of \$1,273 million for the period 1 April 2018 to 31 March 2023.
 - \$825 million total capital expenditure (capex)
 - \$447 million total operating expenditure (opex)
- The maximum allowable revenue Powerco can recover from consumers will increase by about 4.5% in the first year of the CPP, and then in line with inflation.¹⁵
- Powerco is subject to separate quality standards for planned and unplanned interruptions:
 - For unplanned interruptions we have set quality limits that require a 10% improvement in unplanned System Average Interruption Duration Index (SAIDI), and a 5% improvement in unplanned System Average Interruptions Frequency Index (SAIFI), by the end of the CPP period.
 - For planned interruptions we have set quality limits based on Powerco's own forecasts with a margin added to provide some flexibility in the delivery of the CPP work programme. We have also specified a 5 year cap on planned interruptions to incentivise Powerco to manage any year it exceeds the annual limit under the 2 out of 3 compliance scheme.
- Powerco will also be required to provide a CPP Annual Delivery Report which will detail its progress on delivering its work programme and give reasons for any areas where it has not delivered as expected.

¹⁵ In practice, Powerco may not recover all of this revenue increase in the first year of the CPP. The impact of our decision on prices is discussed further in Attachment I.

Powerco's proposal addresses specific needs and an uplift in expenditure is justified

17. Powerco has satisfied us that an uplift in expenditure is required to provide a safe, reliable network for its consumers. Allowing for an increase in investment now is necessary to maintain network reliability and minimise the cost of investment over the long term.

18. Our view is consistent with the Verifier whose overall findings concluded:¹⁶

Powerco is addressing specific network needs, is on an asset management journey, and is considering the future evolution of its network. This means that:

- increased capex and opex spend is required to stabilise asset performance through addressing a rising number of asset defects as assets wear out and to support good practice asset management such as on systems to provide better quality information and analysis, which are expected to reduce expenditure needs in the longer term
- while Powerco intends to implement good asset management practices, in the immediate term its expenditure forecasts reflect, at least in part, current practices and information
- Powerco has an increased focus on managing and reducing risk; this is consistent with prudent practice. In some areas, however, current activities and expenditure is arguably below that associated with prudent practice, and some catch-up is required.

19. In aggregate our assessment has led us to decide that we allow for 96% or \$1.27 billion of the total expenditure proposed by Powerco. This will result in an initial 4.5% increase in Powerco's allowed revenues which will then be adjusted annually for CPI over the CPP period.

20. In the years following the CPP period, we expect the capex investment will place continued upwards pressure on prices as the full value of the investments enters the regulatory asset base. We estimate this will increase allowed revenues by around 10% under certain assumptions. This estimate is subject to some uncertainty as it requires forecasting a number of variables, including those dependent on market conditions, and Powerco's actual and forecast expenditure.¹⁷

¹⁶ Farrier Swier "Powerco's customised price path application: Final verification report for Powerco" (7 June 2017), p 12.

¹⁷ This is discussed further in Attachment I.

21. We estimate the impact on the average monthly residential consumer's bill to be around \$2.70 within the CPP period.¹⁸ The \$2.70 is an average, but the changes in prices charged to specific customers will depend on how Powerco allocates its total revenue requirement and how the energy retailers operating in Powerco's network area structure their prices. Neither is obliged to pass on the increase Powerco charges proportionately to all customers. We estimate an additional average price increase in the order of \$6 in the subsequent regulatory period, although as previously noted, this estimate is subject to some uncertainty.

Powerco is required to target an improvement in quality as a consequence of its investments

22. We have decided to set separate quality standards to apply to Powerco during the CPP period for planned and unplanned interruptions. Powerco's planned and unplanned interruptions must not exceed the limits we have specified.
23. For planned interruptions we have decided to base the quality standard on Powerco's forecasts.
- 23.1 This takes into account the level of planned interruptions that are forecast to be required for Powerco to undertake the CPP work programme, and retains an incentive for Powerco to undertake the CPP work efficiently. We have allowed for a margin above Powerco's forecasts to recognise that such forecasts are subject to some uncertainty and to align with the approach used in the DPP.
- 23.2 Our final decision to set a quality standard for planned interruptions differs from Powerco's proposal. Powerco proposed that planned interruptions should be excluded from the quality standard.
- 23.3 We have decided not to apply a revenue-linked quality incentive scheme to planned interruptions during the CPP period. In our view, applying a revenue-linked quality incentive scheme to the planned interruptions required to undertake the CPP work programme would not be appropriate, as it would create a financial incentive to delay or otherwise reduce the CPP work programme.
24. For unplanned interruptions, we have decided that the quality standard at the start of the CPP period be based on the 10-year average of unplanned interruptions, with a gradual reduction (corresponding to an improvement in quality) over the CPP period.

¹⁸ As Powerco indicated to us, this increase is expected to be largely offset primarily due to lower transmission charges.

25. This reduction reflects the expected improvement in reliability as a result of the proposed investment over the CPP period. We propose that the quality standard for unplanned SAIFI reduce by 5% by the end of the CPP period and that the quality standard for unplanned SAIDI reduce by 10% by the end of the CPP period.¹⁹
26. We have decided to retain the revenue-linked quality incentive scheme for unplanned outages that operates under the current default price-quality path. This will provide Powerco with incentives to improve network reliability where it is cost-effective to do so.

Reflecting on customer preferences in reaching our decision

27. We are conscious our final decision results in a price increase for consumers, and a modest improvement in quality outcomes, where some consumers may prefer no improvement in order to reduce costs.
28. A number of parties have submitted that this overrides consumer preferences.²⁰ According to these submissions, Powerco's proposed expenditure should be assessed in terms of whether it is required to maintain, rather than improve, a specific quality outcome. As a result, these submitters argued that consideration should be given to scaling back the expenditure allowance in order to target current levels of quality.²¹
29. Submissions from Powerco and Aurora did not support such scaling back. Aurora noted that Powerco's rationale for seeking a CPP is to stabilise rather than enhance specific overall quality outcomes.²² Powerco submitted that it had considered the trade-off between price and quality in developing its proposal, and that its proposed expenditure is essential to maintain current levels of quality. Powerco also noted that while much of its proposed expenditure is targeted at asset renewal:

A large part is also addressing increased electricity demand or to ensure that our network remains safe for the public and our staff. Quality benefits from these categories of expenditure would be of a secondary nature only.²³

¹⁹ The 'quality standard' is equal to the 'quality limit'. Detail on how this is calculated can be found in Attachment H.

²⁰ For example, Pat Duignan "Submission by Pat Duignan re Commission Draft Decision on Powerco CPP Proposal" (15 December 2017), para 27; MEUG "Powerco CPP draft decision" (15 December 2017), para 6.

²¹ Pat Duignan "Submission by Pat Duignan re Commission Draft Decision on Powerco CPP Proposal" (15 December 2017), para 33; MEUG "Powerco CPP draft decision" (15 December 2017), para 11; Grey Power Federation Zone 4 "Powerco CPP draft decision – cross submission", para 2.2.

²² Aurora "Cross-submission Draft Decision: Powerco's CPP proposal" (19 January 2018), page 1.

²³ Powerco "Submission on The Commerce Commission 'Powerco Customised Price-quality Path' Draft Decision' – Cross-submission" (19 January 2018), para 14.

30. Having reflected on the submissions on the trade-off between prices and quality, we maintain our view that an increase in allowed expenditure and a modest improvement in quality is appropriate, for the following reasons:
- 30.1 We are satisfied that a significant proportion of Powerco's CPP programme is required in order to address risks around safety and hazard control, as well as to support expected growth in demand for distribution services. For example, it can be strongly argued that the replacement of defective poles and distribution transformers that have a relatively low mounting height are primarily driven by safety or hazard control concerns. Investments in growth projects, such as the Tauranga area, are directed towards ensuring that the development taking place has the necessary infrastructure to meet customers' capacity and security of supply requirements. The expenditure required to address these risks, which includes renewal of older assets as well as investment in new capacity to accommodate expected growth, is likely to lead to a consequential improvement in overall network quality outcomes. In our view, it would not be appropriate to curtail Powerco's expenditure which has been justified on the grounds of addressing hazard control risks or growth, in an attempt to maintain reliability at current levels. Curtailing such expenditure will likely increase hazard control risks and/or attenuate the security of supply that customers will ultimately receive.
- 30.2 There are practical difficulties in directing and fine-tuning expenditure across a substantial and varied investment programme to meet specific quality outcomes, particularly where that programme is directed at multiple objectives (such as hazard control or capacity) and where investment is lumpy. This increases the risks that actual levels of service quality will exceed or fall short of the targeted level of quality.
- 30.3 The development of an asset criticality framework that Powerco is presently undertaking will improve the understanding of these implications by providing a modelling methodology. This will allow the business to direct expenditure to the key assets whose failure is likely to have the highest consequential effect on customers. In the absence of an asset criticality framework, we do not have the information needed to assess whether the benefits of additional expenditure (in terms of quality and other outputs) exceed the costs, nor whether the marginal expenditure is being directed to achieve the highest net benefits.
- 30.4 We consider that those programmes that could be specifically singled-out as driving reliability improvements – such as the growth and security reliability programme (\$17 million) – are a small proportion of expenditure and, in our judgement, represent an effective approach to managing faults and delivering reliability benefits over the long term. If Powerco's allowed expenditure were to be reduced as a consequence, there is a risk that Powerco would not proceed with such projects where the gains in reliability are more valuable than the incremental costs.

30.5 During Powerco's consultation process as part of the development of its CPP proposal, customers indicated a range of preferences regarding matters such as reliability, safety and prices.²⁴ According to Powerco's consumer consultation, there was limited support by its customers for improved reliability if this comes at a higher cost. However, Powerco also found that its customers want and value a resilient network with fewer outages, and that avoiding a deterioration in quality is important. Given the value that Powerco's customers place on avoiding deterioration in quality, as well as the difficulty of fine-tuning lumpy expenditure in order to target specific quality outcomes, our view is that allowing for a modest improvement in Powerco's quality standards is reasonable.

30.6 Retaining a modest improvement in quality limits as part of the quality standard that will apply to Powerco during the CPP period will provide stronger incentives on Powerco to fully implement the CPP work programme. Any reduction or deferral of investment by Powerco that has been provided for as part of our decision would risk Powerco breaching the quality limits that will apply over the CPP period.

31. For the above reasons, we have decided that an increase in allowed expenditure and a modest improvement in quality is appropriate for the purposes of Powerco's CPP.

We consider that our decision is consistent with the evaluation criteria

32. We consider that our decision on Powerco's CPP is consistent with the evaluation criteria and promotes the long-term benefit of consumers. This includes assessment of Powerco's capex and opex forecasts against the expenditure objective.

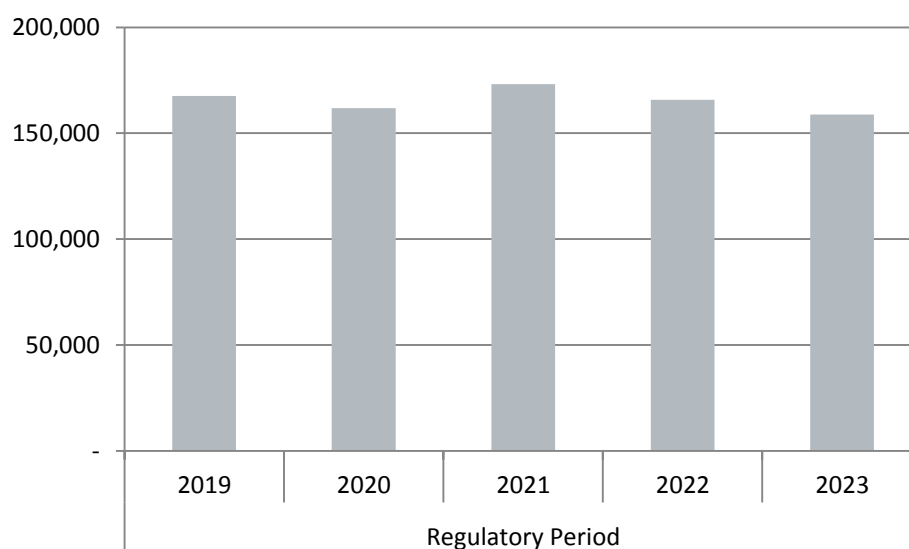
Final decision on Powerco's capex forecasts

33. Capital expenditure is recovered over the life of the asset, so while only a small proportion of it will be recoverable through the price path during the CPP period, its impact on prices will extend beyond the CPP period, with the full impact on pricing becoming transparent when we set prices for the subsequent regulatory period. We have highlighted the pricing impacts of our final decision earlier in this chapter, and discuss how we set the price path for the CPP period in Attachment I.

²⁴ see Chapter 3 for further discussion.

34. Powerco proposed a total of \$873 million of capex over the CPP period. Our final decision is to provide for \$825 million of capex over the five-year CPP period.

Figure 2.1 Total capital expenditure (\$'000)



35. Table 2.2 below breaks this expenditure down into categories.

Table 2.2 Overview of capital expenditure

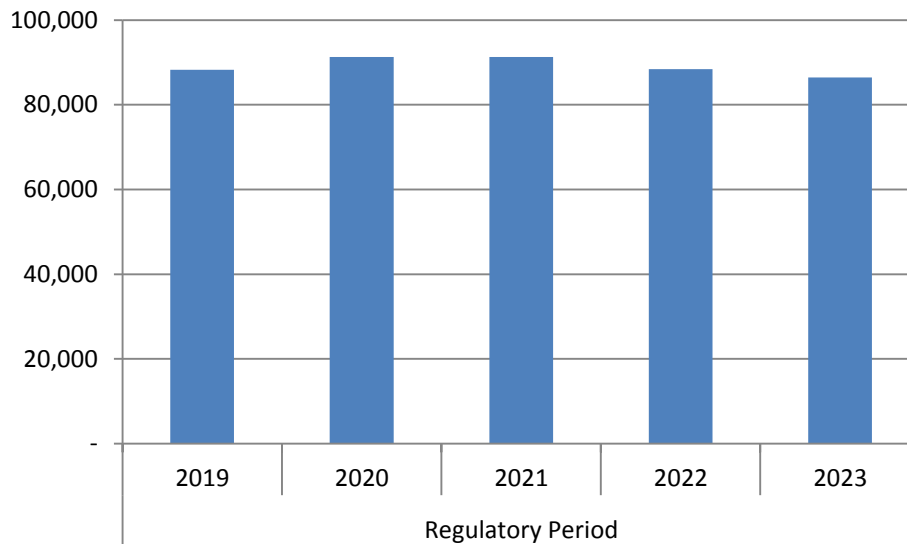
Expenditure programme	Powerco proposal	Verified amount	Final decision
Asset renewals	\$450m	\$378m	\$426m
Network growth and security	\$286m	\$271m	\$281m
Other network capex	\$73m	\$65m	\$55m
Non-network capex	\$63m	\$63m	\$63m
TOTAL	\$873m	\$777m	\$825m

Note that the Verifier selected a sub-set of asset renewals programmes to review. The verified amount for asset renewals is therefore not directly comparable to the amounts shown as 'Powerco proposal' and our 'Final decision', as these relate to all the expenditure categories.

Final decision on Powerco's opex forecasts

36. The opex forecast that we use for Powerco's CPP directly impacts on the price path, as Powerco will be able to fully recover this amount during the CPP period.²⁵
37. Powerco proposed a total of \$455 million of opex for its CPP period. Our final decision is to provide for \$447 million over that 5 year period.

Figure 2.2 Overview of total opex (\$000)



²⁵ This being said, to the extent that Powerco does not spend its entire opex allowance, any underspend will be shared between consumers and Powerco due to the application of the incremental rolling incentive scheme.

38. Table 2.3 below breaks this expenditure down into categories.

Table 2.3 Breakdown of opex

Expenditure programme	Powerco proposal	Verified amount	Final decision
Preventative Maintenance	\$59m	\$59m	\$59m
Corrective Maintenance	\$66m	\$66m	\$66m
Systems operations and network support	\$82m	\$74m	\$75m
Vegetation Management	\$46m	\$46m	\$46m
Corporate	\$116m	\$98m	\$116m
Reactive Maintenance	\$37m	\$37m	\$37m
ICT	\$28m	\$28m	\$28m
Insurance	\$11m	Not verified	\$11m
Facilities	\$10m	Not verified	\$10m
TOTAL	\$455m	\$427m	\$447m

Final decision on Powerco's price path

39. Our final decision is to allow Powerco to increase its price path revenues by 4.5% in the first year of the CPP period, and by CPI for each subsequent year of the CPP period. The CPP period will be from 1 April 2018 until 31 March 2023. This will likely also result in a further increase in subsequent regulatory periods as the capex spent in the CPP period enters Powerco's regulated asset base, which it earns a return on, and is recovered through depreciation.

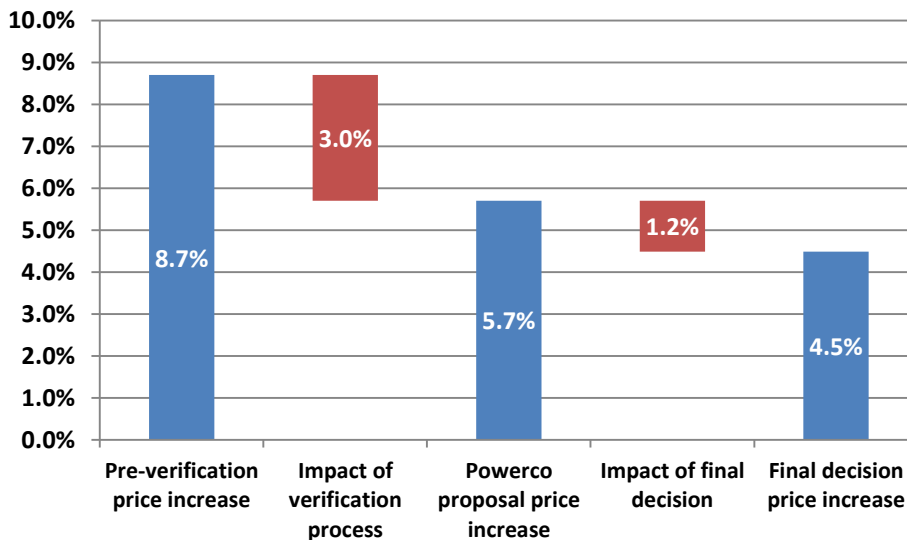
40. Table 2.4 below shows the impact of this increase on Powerco's maximum allowable revenue, as well as the subsequent increases in line with CPI over the remainder of the CPP period.

Table 2.4 Nominal maximum allowable revenue before tax (\$m)

	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023
Powerco's proposal	282	288	294	300	306
Our final decision	279	285	291	297	303
Difference	-3	-3	-4	-4	-4

41. Powerco's price path is constructed using a building blocks approach, which builds up the expected costs to the business (such as tax, opex, depreciation and the cost of capital), and is then smoothed across the CPP period as a price path. This process is explained in more detail in Attachment I.
42. Figure 2.3 below shows the impact that our final decision will have on Powerco's distribution network revenues. It shows the difference in initial price increase between Powerco's CPP proposal prior to verification, Powerco's final CPP proposal, and our final decision.

Figure 2.3 Impact on distribution network revenues



Final decision on Powerco's quality path

43. We have set separate quality standards to apply to Powerco during the CPP period for planned and unplanned interruptions. Powerco's planned and unplanned interruptions should not exceed the limits we have specified.

Planned interruptions

44. Our final decision to set a quality standard for planned interruptions differs from Powerco's proposal. Powerco proposed that planned interruptions should be excluded from the quality standard.
45. Our final decision is to set a quality standard for planned interruptions based on Powerco's forecasts. This option takes into account the level of planned interruptions that are forecast to be required for Powerco to undertake the CPP work programme. We have included a margin above Powerco's forecasts, to recognise that Powerco's forecasts are subject to some uncertainty and to align with the approach used in the DPP. The quality standard retains an incentive for Powerco to undertake the CPP work efficiently in line with our CPP decision.

Table 2.5 Quality Standard for Planned Interruptions

	2019	2020	2021	2022	2023
Planned SAIDI²⁶ (minutes)	79.976	84.944	92.342	98.192	99.292
Planned SAIFI²⁷ (outages)	0.344	0.370	0.393	0.414	0.414

46. Under the quality standard for planned interruptions, Powerco will be deemed to be non-compliant if it exceeds the planned SAIDI or SAIFI limits in a given year and one of the two preceding years. This provides Powerco with some flexibility to reallocate planned work across consecutive years, as compliance would not be assessed for each year in isolation.
47. As part of Powerco's quality standard for planned interruptions, we have also set a requirement that the aggregate volume of actual planned SAIDI minutes over the CPP period does not exceed the total planned SAIDI minutes in Table 2.5 above for 2019-2023 (454.746minutes).

²⁶ System Average Interruption Duration Index.

²⁷ System Average Interruptions Frequency Index.

48. Similarly, for actual planned SAIFI outages over the CPP period, Powerco must not exceed the total shown in Table 2.5 above for 2019-2023 (1.935 interruptions). This is to ensure that Powerco cannot load an excessively high level of planned interruptions into a single year under the two-out-of-three year rule outlined in the preceding paragraph.

Unplanned interruptions

49. For unplanned interruptions, we have decided that the quality standard at the start of the CPP period be based on the 10-year average of unplanned interruptions, with a gradual reduction (corresponding to an improvement in quality) over the CPP period. This reduction reflects the expected improvement in reliability as a result of the proposed investment over the CPP period. We have decided that the quality standard for unplanned SAIFI reduce by 5% by the end of the CPP period and that the quality standard for unplanned SAIDI reduce by 10% by the end of the CPP period.²⁸
50. We consider that this expected reduction in the frequency and duration of unplanned interruptions reflects the reliability improvements resulting from the expenditure that we have allowed for in our final decision.

Table 2.6 Quality Standard for Unplanned Interruptions

	2019	2020	2021	2022	2023
Unplanned SAIDI Limit (minutes)	191.414	187.422	183.514	179.688	175.941
Unplanned SAIDI Target (minutes)	169.529	165.994	162.533	159.144	155.826
Unplanned SAIFI Limit (outages)	2.285	2.262	2.239	2.216	2.193
Unplanned SAIFI Target (outages)	2.115	2.094	2.072	2.051	2.030

Revenue-linked quality incentive mechanism

51. We have decided not to apply a revenue-linked quality incentive scheme to planned interruptions during the CPP period. Powerco has argued that including planned interruptions would create an incentive for Powerco to reduce or delay the CPP work programme in order to gain financially.

²⁸ Under the quality standard that we have set, the unplanned SAIFI quality limit at the end of the CPP period will be 5% lower than at the start of the CPP period, and the unplanned SAIDI quality limit at the end of the CPP period will be 10% lower than at the start of the CPP period.

52. In our view, applying a revenue-linked quality incentive scheme to the planned interruptions required to undertake the CPP work programme, and thereby creating a financial incentive to delay or otherwise reduce the CPP work programme, would not be appropriate. We propose to exclude planned interruptions from the revenue-linked incentive scheme.
53. Our final decision is to retain a revenue-linked quality incentive scheme for unplanned interruptions. This will provide Powerco with incentives to improve network reliability beyond that required by the quality standard for unplanned interruptions where it is cost-effective to do so.

Table 2.7 Our proposed revenue-linked quality incentive scheme (SAIDI)

Unplanned SAIDI

	2019	2020	2021	2022	2023
Unplanned SAIDI Cap (minutes)	191.414	187.422	183.514	179.688	175.941
Unplanned SAIDI Target (minutes)	169.529	165.994	162.533	159.144	155.826
Unplanned SAIDI Collar (minutes)	147.645	144.566	141.552	138.600	135.710
Revenue at risk (\$000)	1,394	1,394	1,394	1,394	1,394
Incentive rate (\$/SAIDI minute)	63,715	65,072	66,458	67,873	69,319

Table 2.8 Our proposed revenue-linked quality incentive scheme (SAIFI)*Unplanned SAIFI*

	2019	2020	2021	2022	2023
Unplanned SAIFI Cap (outages)	2.285	2.262	2.239	2.216	2.193
Unplanned SAIFI Target (outages)	2.115	2.094	2.072	2.051	2.030
Unplanned SAIFI Collar (outages)	1.946	1.926	1.906	1.887	1.867
Revenue at risk (\$000)	1,394	1,394	1,394	1,394	1,394
Incentive rate (\$/SAIFI outage)	8,220,937	8,305,707	8,391,351	8,477,878	8,565,297

Final decision to require Powerco to produce a CPP Annual Delivery Report

54. We have also introduced a separate requirement for Powerco to provide a CPP Annual Delivery Report, using our powers under s 53ZD of the Commerce Act.²⁹
55. Submissions on the need for such a report were received in response to our draft decision, and we discuss these in Attachment K of this paper. We have introduced this requirement to ensure customers have transparency as to how Powerco is progressing in delivering the investment underpinning our final decision.
56. We have also decided that Powerco should convene an annual stakeholder event, in each of its Eastern and Western regions, to present the report. This will provide customers and wider stakeholders with the opportunity to question Powerco on the progress of its CPP works programme, and for Powerco to consider any feedback as part of its future investment decisions.
57. We also intend to hold an annual 'technical' meeting with Powerco. This will be a detailed question and answer session with Powerco and will allow us to better understand the progress it has made in delivering the proposed programme of works.

²⁹ Under s 53ZD of the Commerce Act the Commission may require a supplier to produce certain information.

Chapter 3 Our evaluation approach

Purpose of this chapter

58. This chapter explains the approach we have taken to evaluate Powerco's CPP proposal and make our final decision. It starts by explaining, at a high level, the framework that we have applied in order to make a decision that delivers long-term benefits to consumers. The latter part of the chapter sets out the process we have used to apply this framework.

The Commerce Act guides our determination of Powerco's CPP

59. Our starting point for determining Powerco's CPP is the purpose of Part 4 of the Commerce Act – to promote the long-term benefit of consumers.³⁰

The purpose of Part 4 of the Commerce Act

52A purpose of Part 4

- (1) The purpose of Part 4 is to promote the long-term benefit of consumers in markets referred to in section 52 by promoting outcomes that are consistent with outcomes produced in competitive markets such that suppliers of regulated goods or services—
- (a) have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and
 - (b) have incentives to improve efficiency and provide services at a quality that reflects consumer demands; and
 - (c) share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices; and
- 1.1 (d) are limited in their ability to extract excessive profits.

60. The Act also required us to set rules and processes for CPPs – these rules and processes are referred to as input methodologies.
61. The input methodologies we have previously set relating to CPPs include the requirements that must be met by the applicant for information, verification, audit and consumer consultation, as well as the criteria that we must use to evaluate a CPP proposal.^{31, 32}

³⁰ Commerce Act 1986, s 52A.

³¹ *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, Part 5

³² As required by the Commerce Act 1986, s 52T.

The CPP evaluation criteria

62. The criteria that we must use to evaluate a CPP are set out in EDB input methodologies.³³ These criteria are intended to ensure that our determination of a CPP promotes the long-term benefit of consumers.

Evaluation criteria for customised price-quality path proposals

The Commission will use the following evaluation criteria to assess each CPP proposal:

- a) whether the proposal is consistent with the input methodologies;
- b) the extent to which the proposal promotes the purpose of Part 4 of the Act;
- c) whether data, analysis, and assumptions underpinning the proposal are fit for the purpose of determining a CPP;
- d) whether the proposed capital and operating expenditure meet the expenditure objective;
- e) the extent to which any proposed changes to quality standards reflect what the applicant can realistically achieve taking into account statistical analysis of past SAIDI and SAIFI performance; and/or (ii) the level of investment provided for in the proposal; and
- f) the extent to which the CPP applicant has consulted with consumers on its CPP proposal; and the proposal is supported by consumers, where relevant.

63. We briefly explain each of the evaluation criteria below.

Whether the proposal is consistent with the relevant input methodologies

64. Powerco's proposal must apply or adopt all relevant input methodologies (IMs).³⁴ The IMs establish the key rules, requirements and processes of regulation.
65. Our evaluation of Powerco's proposal included assessing whether the proposal was consistent with the IMs. This included an assessment, prior to accepting the proposal, of whether the proposal met the CPP process and content IM requirements; as well as an assessment of whether the proposal met the substantive IMs for determining a CPP.

³³ *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, clause 5.2

³⁴ Commerce Act 1986, s 53Q(2)(d).

The extent to which the proposal will promote the purpose of Part 4

66. To satisfy the evaluation criteria the proposal must promote the purpose of Part 4 of the Act, outlined above. The Act sets out objectives in s 52A(1)(a)-(d) which are integral to promoting the long-term benefit of consumers, and reflect key areas of supplier performance that we would expect in markets with workable competition.

Whether the information in the proposal is fit for purpose

67. The information in a proposal must be sufficient in detail and quality to allow us to undertake our assessment.³⁵ The assumptions used must also be robust. Where we considered further information was necessary to establish it was fit for purpose, we requested this from Powerco. Where we had doubts about the appropriateness or robustness of an assumption, we sought further explanation for the assumption or used a more appropriate assumption.

Whether the proposed expenditure reflects the expenditure objective

68. The expenditure objective was included in the IMs as a specific evaluation criterion for the assessment of capital expenditure and operating expenditure.³⁶
69. The expenditure objective requires us to assess Powerco's proposed capital expenditure and operating expenditure on the basis that it reflects the efficient costs that a prudent supplier subject to price-quality regulation would require to:
- 69.1 meet or manage the expected demand for electricity distribution services, at appropriate service standards, during the customised price-quality path regulatory period and over the longer term; and
 - 69.2 comply with applicable regulatory obligations associated with those services.³⁷
70. The assessment of forecast expenditure is not a mechanistic process – it necessarily involves the exercise of judgement supported by expert advice.
71. An important part of applying the expenditure objective is to consider the expected demand for electricity distribution services, at appropriate service standards, during the customised price-quality path regulatory period and over the longer term.

³⁵ Commerce Commission "Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper" (22 December 2010), para 9.4.8.

³⁶ Commerce Commission "Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper" (22 December 2010), para 9.4.10.

³⁷ *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, clause 1.1.4.

72. During Powerco’s consultation process, customers indicated a range of preferences regarding matters such as reliability, safety and prices. For example, in its CPP consultation report which was submitted as part of its CPP proposal, Powerco said that:³⁸

The quantified results from the customer survey and the feedback we received from the core consultation ... confirm to us quite definitively that our customers want (and value) a resilient network with fewer outages.

73. Powerco’s CPP consultation report also listed the following priorities identified by its customers:³⁹

73.1 the safe operation of Powerco’s network is more important than prices;

73.2 network resilience is important;

73.3 network elements should be replaced before they fail;

73.4 current reliability should be maintained rather than improved or reduced;

73.5 for some customers, price may be more important than maintaining reliability.

74. The customer feedback provided to Powerco indicates that service quality is important to customers, and that deteriorating service levels would not be acceptable.

75. In considering whether the expenditure objective is satisfied, it is also relevant to recognise that much of Powerco’s proposed expenditure is primarily directed at providing a safe and resilient network and accommodating growth. By addressing issues such as safety risks and growth, there are likely to be consequential improvements in network reliability over time as older assets are replaced with newer assets (for example, to address type issues associated with overhead infrastructure) and as capacity is enhanced.

76. In our view, it is therefore appropriate to start with the objective of maintaining current service quality, and to allow for some improvement as a consequence of such expenditure. This also recognises the difficulty of attempting to fine tune quality outcomes without compromising other objectives relating to safety and growth.

³⁸ Powerco “Customised price-quality path (CPP) Consultation report” (12 June 2017), page 32.

³⁹ Powerco “Customised price-quality path (CPP) Consultation report” (12 June 2017), page 33.

77. The assessment of forecast expenditure focusses on the CPP regulatory period. However, Part 4 of the Act has as its central purpose the long-term benefit of consumers, so we also considered circumstances beyond the period of Powerco's customised price-quality path.⁴⁰

Whether the proposed quality standard variation is realistically achievable

78. Powerco's existing quality standards under the DPP only concern network reliability.⁴¹ The evaluation criteria requires us to assess the extent to which the proposed quality standard variation better reflected the realistically achievable performance of Powerco over the customised price-quality path regulatory period than Powerco's quality standards under its existing DPP.
79. We have considered the realistically achievable performance of Powerco's network over the CPP period through statistical analysis of past SAIDI⁴² and SAIFI⁴³ performance, as well as a consideration of the level of investment provided for throughout the CPP period.⁴⁴
80. Powerco also proposed to remove the quality standard on planned interruptions for the duration of the CPP period, as part of its quality standard variation. In reaching our policy decision on this proposal we have considered, more widely, the purpose of Part 4.
81. We discuss Powerco's proposed quality standard, and the quality standard that we have set as part of our final decision, in Attachment H of this decision.

The extent of Powerco's consultation with consumers and support from Powerco's consumers

82. A CPP path must promote the long-term benefit of consumers. While consumers are best placed to understand what they value in terms of price and quality trade-offs, we acknowledge that a supplier should have a better understanding of the required network investment to meet those preferences than its consumers.

⁴⁰ Commerce Commission "Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper" (22 December 2010), para 9.4.12.

⁴¹ Network reliability is the term used to refer to the extent that a network provides consumers with a continuous, uninterrupted supply of electricity.

⁴² System Average Interruption Duration Index (SAIDI).

⁴³ System Average Interruption Frequency Index (SAIFI).

⁴⁴ *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, clause 5.4.5.

83. Accordingly, consumer agreement to the proposed customised price-quality path is not required. However, we took into account the extent of support (or opposition) for the matters that were raised by Powerco in its consultation with consumers on its proposal.⁴⁵ We also took into account feedback we received from customers on the issues we raised in our Issues Paper, as well as in submissions on our draft decision.
84. Consumer feedback is likely to be particularly relevant where an EDB seeks to justify proposed investments or changes to quality on the basis of consumer demands.⁴⁶

If a CPP proposal does not satisfy the evaluation criteria then we must set a CPP that does

85. If we had concluded that the proposal fully satisfied the evaluation criteria, then setting the customised price-quality path would have been relatively straightforward.
86. While we consider that large parts of Powerco's proposal did satisfy the evaluation criteria, some parts did not. This means that further work was required to determine a CPP that satisfies the evaluation criteria. We consider that our final decision satisfies the evaluation criteria.
87. The depth and extent of our analysis for this second step will vary for different customised price-quality path proposals, depending on the robustness and quality of the proposal (as reflected in our evaluation conclusions from step one). Other factors such as the size and complexity of the proposal will also affect the amount of analysis required in step two.

Our evaluation of Powerco's proposal against the evaluation criteria

88. The starting point for our assessment was the review undertaken by the independent Verifier of Powerco's proposal.

We have had regard to the findings of the independent Verifier

89. The CPP process required Powerco to have its CPP proposal reviewed by an independent Verifier.⁴⁷

⁴⁵ Commerce Commission "Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper" (22 December 2010), para 9.4.16.

⁴⁶ Commerce Commission "Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper" (22 December 2010), para 9.4.15.

⁴⁷ The requirements for CPP proposals to be verified are set out in the IMs. See: *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, Schedule G

90. The verification process is intended to add value to the quality of CPP proposals and to our decision making by testing, in advance of submission, the assumptions that underpin forecast information on major capital projects, operating expenditure, and energy demand.⁴⁸

Farrier Swier Consulting acted as the Verifier for Powerco's CPP

91. In December 2016 we agreed with Powerco to appoint Farrier Swier Consulting as the independent Verifier for Powerco's CPP proposal. Powerco undertook a request-for-proposal process to identify a suitable Verifier. We reviewed Farrier Swier's proposal for the work and we were satisfied that Farrier Swier's extensive experience (in Australia and abroad), coupled with expert assistance from WSP Australia, suitably qualified it to verify Powerco's CPP proposal. We were also satisfied that Farrier Swier was independent and could provide an impartial view on Powerco's proposal.
92. Farrier Swier signed a deed with us and Powerco requiring it to verify Powerco's proposal in line with the rules set out in the IMs. The deed provided that Farrier Swier had an overriding duty to assist the Commission as an independent expert with relevant matters within Farrier Swier's areas of expertise.
93. Farrier Swier produced a verification report, which drew on a five-month period of information review and iterative analysis. During this time Farrier Swier attended a workshop with Powerco and the Commission in December 2016, conducted site visits to Powerco's Wellington and New Plymouth offices, hosted Powerco staff in Melbourne on three occasions, and formally submitted questions to Powerco, resulting in over 350 responses. You can download the verification report by following this link: <http://www.comcom.govt.nz/dmsdocument/15550>
94. As a result of the verification process Powerco reduced its proposed capex forecasts by \$51 million (a 5.6% reduction), and opex forecast by \$23 million (a 4.8% reduction).
95. The Verifier also considered whether Powerco's proposed quality path better reflects the realistically achievable performance of Powerco over the CPP period. The Verifier focused on Powerco's proposed targets for unplanned SAIDI and SAIFI, and concluded that Powerco's proposed targets:⁴⁹

...are realistically achievable – in that it is realistic to assume that Powerco can deliver superior performance to them.

⁴⁸ The role of the Verifier was discussed in more detail in the 'Verification requirements' chapter of our recent IM review decision paper on the CPP requirements. This paper can be downloaded at the following link: <http://comcom.govt.nz/dmsdocument/15107>

⁴⁹ Final Verification Report for Powerco, Farrier Swier (7 June 2017), page 37.

96. The Verifier's view was that Powerco's unplanned SAIDI and SAIFI performance was likely to improve over the CPP period due to Powerco's proposed maintenance, vegetation management, and asset renewals programmes. In addition, the Verifier noted that normalised SAIDI and SAIFI had appeared stable over the last five to ten years, in part as a result of the reliability and asset renewals initiatives undertaken over that period.⁵⁰

We consider the Verifier's findings are robust

97. Following Powerco's submission of its CPP proposal, we have critically reviewed the verification report and the techniques and methods the Verifier has used to test Powerco's proposal. This included a two-day workshop with the Verifier in June to test the Verifier's findings.
98. We were very pleased with the rigour of Farrier Swier's analysis and we consider its review of Powerco's proposal to be thorough and undertaken to a high standard.
99. To satisfy ourselves that the CPP verification process met the IM requirements, we requested that Strata Energy Consulting (Strata) undertake a high level review of the Verifier's Report and report back to us on the extent to which we should rely on the conclusions and recommendations of the Verifier.
100. Strata concluded that the approach taken by the Verifier was aligned with the IM requirements for CPP verification. Strata also considered that an appropriate level of rigour had been applied by Farrier Swier in undertaking its verification functions, and that the Verification Report itself was well constructed. Strata also noted some further aspects that we may want to consider.
101. In our further analysis of Powerco's CPP proposal we have endeavoured to address these recommendations. For instance, we consider that Powerco's forecasts do not include expenditure not spent in previous price periods (referred to as 'roll-outs'), and that proposed investments meet the expenditure objective for the CPP period. We engaged Strata to assist in identifying aspects of Powerco's major growth and security projects that required further assessment by us, prior to making our draft decision.
102. As a result of our review of Farrier Swier's analysis, we were confident that we could place weight on the views in its verification report regarding Powerco's proposed levels of expenditure when making our own determination of the CPP. We sought views from interested parties on this proposed approach as part of our consultation on our Issues Paper and draft decision and received general support for this approach in submissions.

⁵⁰ Final Verification Report for Powerco, Farrier Swier (7 June 2017), page 38.

Our review of Powerco's CPP proposal

103. Where the independent Verifier was unable to establish whether parts of Powerco's proposal satisfied the evaluation criteria, we undertook our own, more detailed, review of Powerco's proposal.
104. For example, where the link between expenditure and the benefits the expenditure was intended to deliver was unclear, or the expenditure did not appear justified, we undertook a more detailed analysis of the assumptions and forecasts built into Powerco's proposal. We reviewed material assumptions, and assessed the sensitivity of the proposed expenditure to changes in assumptions.
105. On a number of occasions we requested further information from Powerco, such as cost-benefit analyses of different options, and met with Powerco staff to better understand the justification for what they had proposed. This included site visits over five days in the Tauranga, New Plymouth and Palmerston North regions.
106. In line with the proportionate scrutiny principle, the level of detail of our assessment varied depending on our concerns and any concerns expressed by the independent Verifier, as well as the materiality of any proposed expenditure.⁵¹
107. We published our draft decision on Powerco's CPP proposal on 16 November 2017, and received submissions and cross-submissions in December 2017 and January 2018 respectively.
108. In reaching our final decisions on appropriate levels of expenditure for Powerco's CPP, Commissioners have had the benefit of the verification report, the advice of Strata, the expertise of appropriately qualified Commission staff, as well as information provided through the submissions process.

⁵¹ The principle that the level of scrutiny applied should generally be commensurate with the price and quality impact on consumers of the tailoring being sought.

The use of cost-benefit analysis in the assessment of CPPs

What we said in our draft decision

109. In our draft decision, we noted that a number of submitters on our Issues Paper had suggested that we also employ a cost-benefit analysis to assist our determination of the appropriate levels of expenditure to allow for Powerco's CPP.
- 109.1 TDB Advisory (TDB) on behalf of Electricity Retailers Association of New Zealand (ERANZ) submitted that cost-benefit analysis should be used to test the price-quality trade-off in the CPP and whether the CPP is in the best interests of consumers.⁵²
- 109.2 As part of its submission for the Major Electricity Users Group (MEUG), New Zealand Institute of Economic Research (NZIER) produced a high-level quantitative analysis which compared the incremental uplift in revenue under Powerco's proposed CPP (compared with the DPP), against the estimated value of the improved reliability that Powerco expects as a result of its increased expenditure under a CPP.⁵³
110. In our draft decision, we set -out the criteria that we must use to evaluate a CPP as defined in the input methodologies.⁵⁴ We noted that these criteria are intended to ensure that our determination of a CPP promotes the long-term benefit of consumers. Our draft view was that cost-benefit analyses, and various other techniques like engineering assessments, can have a role to play within the current framework to inform our assessment of a CPP proposal. However, we said that the current framework does not require us to undertake a cost-benefit analysis of Powerco's full CPP proposal in order to approve or reject it.
111. We also said that it was not appropriate to add a new evaluation consideration at this stage of the process. We noted that the use of cost-benefit analysis had not been raised during the recent review of the input methodologies that apply to CPPs.
112. We said that where expenditure associated with a CPP proposal meets the expenditure objective, an appropriately specified and robust analysis of the benefits and costs associated with that proposal would broadly support that finding. However, we noted that there is likely to be considerable uncertainty around the quantification of some of the potential benefits and costs, particularly those associated with long-term investment programmes.

⁵² TDB Advisory on behalf of ERANZ "Submission on Powerco CPP Issues paper" (22 September 2017), para 1.2.

⁵³ NZIER "Powerco CPP application: Advice to MEUG for Commerce Commission submission" (22 September 2017).

⁵⁴ Commerce Commission "Electricity Distribution Services Input Methodologies Determination 2012" (15 November 2012), clause 5.2.1.

113. In our draft decision, we identified a number of concerns we had with NZIER's analysis of the potential benefits and costs of Powerco's CPP proposal. These concerns related to the scope of the NZIER analysis and some of the underlying assumptions used by NZIER. We were not satisfied that NZIER's cost-benefit analysis represented a sufficiently robust approach to justifying Powerco's CPP expenditure, nor that it is achievable to remedy these weaknesses. The main concerns that we had with the NZIER analysis are discussed below.
114. First, the NZIER model did not adequately take into account all of the relevant benefits that should be considered when assessing expenditure against the expenditure objective. The model focussed on the reliability benefits of Powerco's proposed expenditure. However, the expenditure objective is not focussed solely on reliability. Compliance with regulatory requirements (such as replacing assets for health and safety reasons), the ability to meet future growth in customer connections and improvements in operational efficiency should all be considered in assessing the proposed expenditure against the expenditure objective. In other words, NZIER's analysis takes into account all of the costs associated with the CPP, but only takes into account one of the benefits.
115. Second, the NZIER analysis only considers the potential benefits and costs over a timeframe of nine years (2018-2017). Many of the proposed investments that are part of Powerco's CPP programme are long-lived investments, and the benefits associated with these investments are likely to emerge and increase beyond the timeframe used by NZIER. For example, the incremental benefits in terms of lower unplanned SAIDI and SAIFI under the CPP compared to the DPP increase over the period to 2027.
116. Third, there are a number of other uncertainties involved in modelling the costs and benefits arising from the CPP proposal and those to be expected if Powerco continued to be on a DPP. A number of specific modelling assumptions used by NZIER have a significant impact on the net benefits generated by the NZIER model. These include:
- 116.1 in estimating the incremental cost to consumers under the CPP, NZIER applies a nominal growth rate to DPP and CPP revenues. However, in estimating the benefits of improved reliability, NZIER use a flat (i.e. real) forecast of the value of lost load (VoLL). Allowing the VoLL to increase in nominal terms has the effect of increasing the net benefits to consumers under the CPP scenario;
- 116.2 NZIER assumes that opex would remain flat if Powerco remained on the DPP. This is unlikely where assets reaching the end of their useful life are not replaced. Increasing opex under the DPP scenario has the effect of increasing the net benefits to consumers under the CPP scenario;
- 116.3 related to the preceding sub-paragraph, increasing opex under the DPP is likely to result in higher planned interruptions under the DPP, as more work is required to maintain older assets; and

- 116.4 NZIER has modelled reliability using Powerco's forecasts of unplanned SAIDI. Our view was that Powerco's forecasts of unplanned SAIDI are likely to understate the reliability improvements expected under the CPP.
117. We noted that we had tested the sensitivity of the NZIER model with respect to the above assumptions and had found that in the longer term, the NZIER model can generate positive net benefits for consumers.⁵⁵
118. On balance, given the uncertainties in attempting to quantify the potential benefits and costs of Powerco's CPP, we did not think that such analysis would add significant value in our evaluation of Powerco's CPP.
119. We noted that in order to robustly model the full costs and benefits of various expenditure profiles, significant work would be required on the part of the CPP applicants. If we were to require this modelling, the information requirements for this should be set out in the input methodologies applicable to CPP proposals. In this sense, MEUG and ERANZ's submissions would have been more suitably considered as part of the input methodologies review, where we considered more broadly the approach that we take to evaluating and determining CPPs.
120. We did acknowledge that our regime is still evolving, and that with better asset management practices, it may be possible for EDBs to better model the reliability impact of specific investments. This would enable us to potentially look at developing a cost-benefit approach for assessing CPPs in the future. We noted that cost-benefit analysis is potentially an important part of our toolkit and that we would continue to consider how we use it in our work going forward.

Submissions on our draft decision

121. A number of submissions on our draft decision commented on the use of cost-benefit analysis in the assessment of Powerco's CPP.
122. MEUG disagreed with the view in the draft that the use of cost-benefit analysis is not a requirement of the input methodologies for CPPs, for the reasons given by NZIER.⁵⁶ According to MEUG, in the absence of any quantification that the long-term benefit of a quality improvement exceeds the costs, the current quality standards should be retained, and a commensurately lower expenditure path should be determined.

⁵⁵ In responding to questions on the draft decision, we noted that our analysis of the NZIER model was available upon request. See Commerce Commission "Questions and answers register for Powerco CPP draft decision – 5 December 2017", available at <http://www.comcom.govt.nz/dmsdocument/15959>

⁵⁶ MEUG "Powerco CPP draft decision" (15 December 2017), para 9.

123. MEUG submitted that if cost-benefit analysis is not used as the primary decision-making criteria rather than the expenditure objective, this should be a topic for the post-decision review.⁵⁷
124. NZIER submitted that a comparison of the costs and benefits of Powerco's CPP is necessary to assess the long-term benefit of the CPP to customers. This is because the level of reliability offered to customers is being materially altered in return for a material price increase. NZIER also claimed that the options analysis undertaken by Powerco and the fault analysis by the Verifier clearly indicate there are intermediate price/reliability choices available.⁵⁸
125. NZIER commented on the concerns raised in the draft decision on the NZIER cost-benefit model.⁵⁹
- 125.1 NZIER focused on the differences between the CPP and DPP, based on forecasts provided by Powerco. NZIER assumed that issues such as growth in connections are captured in Powerco's forecasts under the DPP and CPP.
- 125.2 NZIER's analysis covered 2018-2027, which is the period covered by Powerco's forecasts. NZIER accepted that assets tend to be long-lived, but noted that the annual benefit of new assets remains stable or declines as the assets age.
- 125.3 NZIER accepted that the VoLL price should be adjusted for inflation, and that this increases the annual benefit from the CPP, although the increase is insufficient to outweigh the higher costs of the CPP.
- 125.4 NZIER acknowledged that its model was based on Powerco forecasts of SAIDI under the CPP and DPP, whereas the SAIDI target in the draft decision was lower.
126. Pat Duignan submitted that given customers have said they do not want to pay more for increased reliability, a proposal for higher expenditure to maintain or increase reliability must be based on a comparison of costs and benefits. He also submitted that undertaking an analysis of costs and benefits is not introducing a new evaluation criterion, but that cost-benefit analysis is a tool to assess whether a criterion is met.⁶⁰ He argued that uncertainties in estimating the net benefit to consumers of

⁵⁷ MEUG "Powerco CPP draft decision" (15 December 2017), para 19.

⁵⁸ NZIER "Powerco CPP draft decision: Advice to MEUG for Commerce Commission" (14 December 2017), pages ii, iii

⁵⁹ NZIER "Powerco CPP draft decision: Advice to MEUG for Commerce Commission" (14 December 2017), pages 10, 11.

⁶⁰ Pat Duignan "Submission by Pat Duignan re Commission Draft Decision on Powerco CPP Proposal" (15 December 2017), para 9.

reliability investments are not a reason to abandon cost-benefit analysis and instead rely on qualitative and subjective judgement.⁶¹

127. Aurora submitted that the draft decision was correct that a quantified costs-benefit analysis was not required when assessing a CPP proposal, and that an appropriate channel for considering such a requirement is the input methodologies review process. According to Aurora, the introduction of a cost-benefit analysis would represent a ‘mid-play’ changing of the rules, which would be contrary to the regulatory certainty principle of the input methodologies.
128. Aurora also submitted that the NZIER costs-benefit model was not fit-for-purpose, and excluded substantive categories of benefits.⁶²
129. In cross-submissions:
- 129.1 MEUG supported Pat Duignan’s view that costs-benefit analysis is required where customer preferences are being over-ridden, and that such analysis is a standard tool which does not need to be detailed in input methodologies.⁶³
- 129.2 Grey Power Federation Zone 4 supported the view that a decision to increase expenditure to maintain or increase reliability should be based on comparing costs and benefits.⁶⁴
- 129.3 Aurora claimed that there was nothing in submissions that alters the view that the NZIER cost-benefit analysis is not fit-for-purpose.⁶⁵
- 129.4 Pat Duignan responded to Aurora’s submission by noting that lower prices and relaxed quality standards would be in the interests of both investors and consumers, and that Powerco would be able to retain customer goodwill if it can demonstrate that the value of the increase in reliability outweighed the higher costs for consumers.⁶⁶

⁶¹ Pat Duignan “Submission by Pat Duignan re Commission Draft Decision on Powerco CPP Proposal” (15 December 2017), para 11.

⁶² Aurora “Submission: Powerco’s proposal to customise its prices and quality standards, Draft Decision” (15 December 2017), page 3.

⁶³ MEUG “Powerco CPP draft decision – cross submission” (19 January 2018), para 10.

⁶⁴ Grey Power Federation Zone 4 “Powerco CPP draft decision – cross submission” (19 January 2018), para 2.2.

⁶⁵ Aurora “Cross-submission Draft decision: Powerco’s CPP proposal” (19 January 2018), page 2.

⁶⁶ Pat Duignan “Cross-submission by Pat Duignan re Commission Draft Decision on Powerco CPP Proposal” (19 January 2018), paras 18-20.

Our final decision

130. As we noted in the draft, the purpose of setting and reviewing the input methodologies is to promote certainty and predictability around the rules to be applied when implementing regulation under Part 4 of the Commerce Act. The use of cost-benefit analysis was not raised during the recent review of the CPP input methodologies. The imposition of new evaluation considerations during the course of assessing a CPP proposal would risk undermining the certainty and predictability which the input methodologies are designed to achieve.
131. Although we are not required to undertake a cost-benefit analysis of Powerco's CPP proposal,⁶⁷ such analysis can in principle be a useful tool which can help inform whether a CPP proposal promotes the long-term benefit of consumers. However, the appropriate forum for introducing a requirement for cost-benefit analysis as part of the assessment framework for CPPs is in our view the review process for the input methodologies applying to CPPs. This is to ensure that CPP applicants are aware of the requirements to be satisfied as they develop and consult on their applications. This will enable CPP applicants to fully consider and consult upon the assessment framework, the range of potential benefits and costs, and the relevant information requirements to be included in their application.
132. The contribution to be made by cost-benefit analysis will depend on the robustness of the analysis, such as in relation to the structure and scope of the analysis and any underlying assumptions. In order to be able to robustly quantify the range of potential benefits to consumers of Powerco's CPP programme, an effective asset management framework is required. Such a framework will improve understanding of the health of network assets as well as the importance or criticality of those assets in terms of safety and reliability outcomes in the event that the asset were to fail. We set out our views on Powerco's asset management practices later in this decision, where we note that Powerco is currently developing an asset criticality management framework and that we will be monitoring Powerco's work in this area.⁶⁸
133. We continue to have concerns around the scope of, and inputs used in, the NZIER model, and that NZIER's analysis is likely to understate the net benefits of the CPP.
- 133.1 As acknowledged by NZIER, the VoLL assumption used by NZIER is likely to have understated the net benefits under the CPP scenario.

⁶⁷ This is in contrast to other contexts, where we are explicitly required by legislation to consider benefits and costs. See for example Section 52G(1)(c) of the Commerce Act, in relation to when goods or services may be regulated under Part 4 of the Commerce Act.

⁶⁸ See Attachment L.

- 133.2 Although NZIER uses Powerco's forecasts of SAIDI for the DPP and CPP scenarios, we have noted (as has the Verifier) that the Powerco forecasts for unplanned SAIDI under the CPP are likely to underestimate the improvement in reliability. As a result, NZIER is likely to have understated the net benefits under the CPP scenario.
- 133.3 For the scenario where Powerco were to remain under a DPP, NZIER used Powerco's forecast for planned outages, which remain unchanged over time. However, as we noted in the draft (and the Verifier concluded in its review of Powerco's application), much of the expenditure proposed by Powerco is required to provide a safe and resilient network. Under the DPP scenario, to the extent that Powerco would be constrained from replacing ageing assets, Powerco is likely to face increasing levels of maintenance and planned outages in order to undertake such maintenance.
- 133.4 NZIER's model only compares the potential benefits and costs over the period from 2018-2027, whereas much of Powerco's proposed capex is in respect of long-lived assets. NZIER noted that the annual benefits of assets remain stable or decline as the assets age. However, this will be the case under the CPP and the DPP, and given that the assets under the CPP will be relatively new, there are likely to be ongoing incremental benefits under the CPP beyond 2027 which are omitted from the NZIER model.
134. We reiterate that the NZIER model focuses on one driver of Powerco's CPP proposal (reliability), and compares the benefits of improved reliability (under the CPP, compared to the DPP) with the increased costs of the CPP programme. A significant proportion of Powerco's CPP capex is focused on addressing safety risks and growth, including much of the capex on growth and security, as well as renewals capex.
135. We also note that a number of submissions on our draft decision argued that if our decision on the trade-off between prices and quality were to over-ride consumer preferences, we need to be satisfied that the benefits exceed the costs of doing so. For example, according to MEUG, if consumers are found to prefer that reliability be maintained at current levels, any decision to allow reliability to improve should be supported by positive net benefits.
136. As discussed earlier in this chapter, customers have indicated a range of preferences in terms of reliability levels, including that they value improved network resilience and fewer outages. We consider that our final decision on Powerco's CPP, which allows for increased expenditure as well as a quality path that allows for some improvement in reliability, is consistent with this customer feedback.

137. Although we have not employed a quantitative analysis of the overall costs and benefits as part of our assessment of Powerco's CPP, we have considered whether Powerco's proposed expenditure meets the CPP evaluation criteria discussed earlier in this Chapter. This has involved an assessment of the justification and expected impact of the expenditure proposed by Powerco, as informed by the Verifier's review of Powerco's proposal, as well as our own analysis and that of our expert consultant. We remain open to the greater use of quantitative analysis as our CPP regime evolves and as EDBs move towards better asset management practices that enable the reliability impact of specific expenditure programmes to be modelled.

Attachment A Overview of Powerco's capex proposal

Purpose of this attachment

138. This attachment outlines Powerco's capex proposals for the CPP period, and provides a high level summary of our final decision in respect of those proposals.

Summary of our final decision

139. We have decided to accept \$825 million of the \$873 million Powerco has proposed in its CPP application. We consider this proposed expenditure meets the expenditure objective and our position is unchanged from our draft decision.⁶⁹
140. We have decided to reject \$48 million of Powerco's proposed capex as we are not satisfied this expenditure meets the expenditure objective.

Powerco's proposed capex

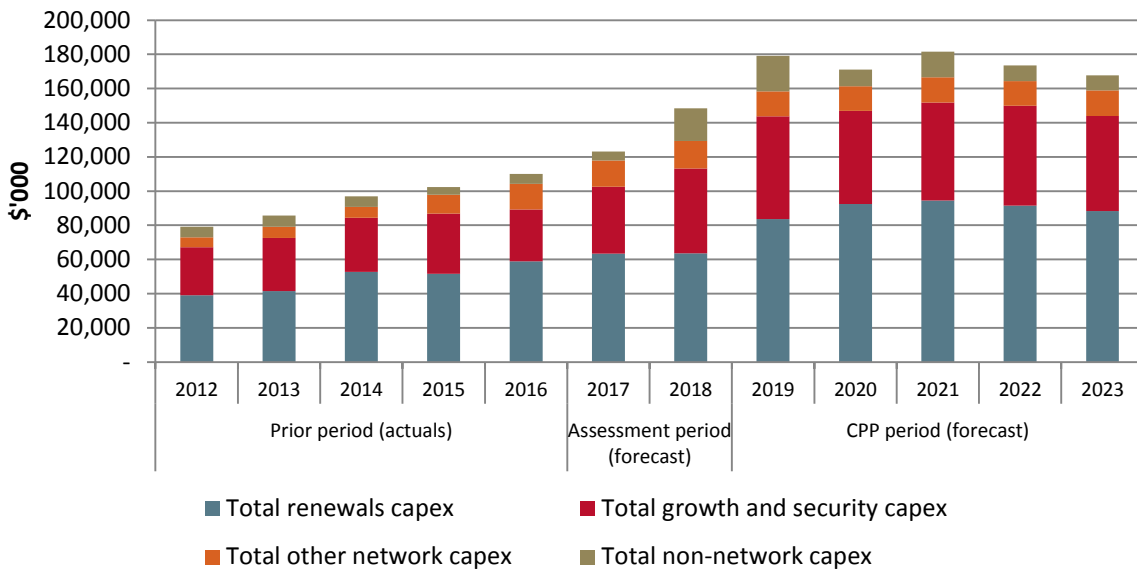
141. Powerco requested a total of \$873 million that includes proposals to undertake a significant investment programme for renewals, growth and security, other network capex and non-network capex. This represents a 50% increase of \$292 million for capex expenditure when compared to the five years leading up to the CPP period (2014-2018).
142. Powerco's capex proposals include the following:
- 142.1 Renewals – \$450 million for renewals that include overhead structures (such as poles and cross-arms), overhead conductors, cables, zone substations, distribution transformers, distribution switchgear and secondary systems (such as protection relays, communication devices and metering that is usually located within zone substations). We have decided to allow \$426 million for Powerco's renewals investment in our final decision;
 - 142.2 Growth and Security – \$286 million for growth and security projects to meet peak demand at appropriate levels of reliability. We have decided to allow \$281 million for Powerco's growth and security projects in our final decision;
 - 142.3 Other network capex – \$73 million for other capex projects and programmes such as connections, asset relocations and network evolution. We have decided to allow \$55 million for Powerco's other capex projects in our final decision; and

⁶⁹ Fonterra agreed with our draft decision to reduce Powerco's overall capex proposal from \$873 million to \$825 million in its submission: "Powerco's proposal to customise its prices and quality path standards draft decision", 14 December 2017, para 1.1.

142.4 Non-network capex – \$63 million for non-network capex such as IT systems (ICT) and facilities. We have decided to allow all of Powerco's proposed non-network capex in our final decision.

143. Powerco's proposed capex during the CPP period is illustrated in Figure A1 below:⁷⁰

Figure A1 Overview of Powerco's Capex proposals



144. A detailed description of each capex category, including what Powerco proposes to spend within each capex category, and the reasons for our draft decision, are included in the subsequent Attachments B-F.

The Verifier’s views on Powerco's proposed capex

145. Powerco initially proposed capex of \$924 million, which was a 59% increase of \$343 million. However, as a result of the verification process, Powerco adjusted its capex forecast downward by \$51 million.

146. The Verifier noted there is a need for Powerco to manage deteriorating network condition, energy at risk and future network growth. These factors, which are the primary drivers for Powerco’s proposed investment combined with Powerco's need to improve its asset management practices, lead the Verifier to the view that an increase in expenditure from current levels may be warranted.

⁷⁰ The assessment period, for the purposes of these tables, is the two years directly prior to the CPP period, where Powerco provided forecasts because actual information for these years was not available.

147. The Verifier considered Powerco:
- 147.1 has, and appears to apply, a comprehensive range of policy and planning standards;
 - 147.2 generally applies forecasting methodologies and models that do not appear inappropriate; and
 - 147.3 applies assumptions to its forecasts that do not appear to be unreasonable.⁷¹
148. However, the Verifier highlighted areas where some of Powerco's forecasts do not meet the expenditure objective. This led to the Verifier considering that \$95 million of Powerco's proposed capex could still not be verified.
149. Under a CPP, the input methodologies allow the Verifier to nominate up to twenty projects or programs for detailed review. For Powerco's CPP proposal, the Verifier selected fifteen projects and programs based upon the requirements of Schedule G4 of the IMs. Ten of these were capex and five were opex projects or programs.
150. A three step approach was adopted for identifying projects or programs based upon:
- 150.1 Materiality: 5% or more of total expenditure or a 30% increase greater than \$1 million);
 - 150.2 Drivers: where a particular project or program is a key risk to Powerco's business; and
 - 150.3 Identification: where demonstration against the expenditure objective is necessary, significant price increases may arise and there is a link to quality standards.⁷²
151. This resulted in a number of capex categories not being reviewed by the Verifier, and this included minor growth and security projects, customer connections, asset relocations and facilities.
152. The Verifier made recommendations for us to undertake further analysis to satisfy ourselves that all aspects Powerco's proposed capex meets the expenditure objective.⁷³ We have undertaken the further analysis in each area of capex recommended by the Verifier, and our findings and reasons for reaching our final decisions in each of these capex areas are explained in Attachments B-F of this paper.

⁷¹ Final Verification Report for Powerco, Farrier Swier (7 June 2017), page 41.

⁷² More detail on the selection process adopted by the Verifier can be found on pages 126-131 of the Verification Report.

⁷³ Final Verification Report for Powerco, Farrier Swier,(7 June 2017), page 43.

Our approach to assessing Powerco's proposed capex

153. We have adopted a thorough approach in determining appropriate capex allowances for Powerco over the CPP period. This has included:
 - 153.1 Reviewing Powerco's proposal and the verification report to identify the key issues for us to consider, including issues highlighted for our attention by the Verifier.
 - 153.2 Assessing the extent to which we could rely on the analysis and conclusions of the Verifier. This included a lengthy workshop with the Verifier to probe the approach and conclusions of the verification process, and discuss the issues identified by the Verifier and ourselves. We also commissioned a high-level review by our consultants, Strata Energy Consulting, to confirm that we could rely on the findings of the Verifier.
 - 153.3 Publishing an Issues Paper and our Draft Decisions that provided an opportunity for interested persons to express their views on Powerco's proposed capex and the Verifier's conclusions.
 - 153.4 Raising additional questions to Powerco and also meeting with Powerco staff on various occasions. In these questions and discussions, we particularly focussed on understanding Powerco's justification for capex step changes in growth and security programmes, overhead conductor renewals and network evolution proposals.
 - 153.5 Our staff then made recommendations to Commissioners on the appropriate levels of capex allowances to be included in Powerco's proposed price path. Commissioners' decisions on these recommendations are reflected in this final decision.
154. The specific analysis we have undertaken for each category of Powerco's proposed capex is explained in detail in the subsequent attachments of this final decision.

Attachment B Allowance for renewals capex

Purpose of this attachment

155. This attachment outlines our decisions on the renewals capex that Powerco will be able to recover from its customers in the CPP period.

Summary of our decision for renewals capex

156. We have accepted \$426 million of the \$450 million renewals capex proposed by Powerco as satisfying the expenditure objective. We note that this is unchanged from what we proposed in our draft decision.

Powerco's proposed renewals capex

157. Powerco proposed to spend \$450 million of renewals capex over the CPP period, an increase of \$160 million (55%) on the five years leading up to the CPP period. Of the total renewals capex proposed by Powerco,
- 157.1 \$55 million relates to the replacement of overhead conductors (an increase of 202% on the five years prior to the CPP period);
 - 157.2 \$178 million relates to the replacement of overhead structures (an increase of 60% on the five years prior to the CPP period);
 - 157.3 \$72 million relates to the replacement of zone substations (an increase of 99% on the five years prior to the CPP period);
 - 157.4 \$28 million relates to secondary systems (an increase of 160% on the five years prior to the CPP period);
 - 157.5 \$85 million relates to the replacement of distribution transformers and switchgear (an increase of 7% on the five years prior to the CPP period); and
 - 157.6 \$33 million on the replacement of cables (a decrease of 6% on the five years prior to the CPP period).
158. We provided a more comprehensive summary in our draft decision paper. The full detail is provided in Powerco's main proposal, Chapter 11.

The Verifier's views on renewals capex

159. The Verifier focussed on four capex renewals programmes proposed by Powerco. These four capex renewals programmes were selected on the basis of programme

selection criteria relating to materiality, expenditure drivers, and other considerations.⁷⁴

160. The four capex renewals programmes that were selected and reviewed by the Verifier were as follows:⁷⁵

160.1 Overhead conductor renewals programme.

160.2 Overhead structure renewals programme.

160.3 Zone substation renewals programme.

160.4 Secondary systems renewals programme.

161. We provided a more comprehensive summary of the Verifier's findings in our draft decisions paper but a short summary of these follows here.

Overhead conductors

162. The Verifier considered that Powerco's proposed expenditure on sub-transmission and low voltage conductor renewals did not appear unreasonable.⁷⁶

163. However, the Verifier concluded that Powerco's proposed expenditure on the renewal of distribution conductor was overstated and had not been clearly justified. The Verifier identified a number of issues with Powerco's modelling of distribution conductor replacement and concluded that only \$10 million of the proposed \$39 million of distribution conductor renewals capex could be properly verified.

Overhead structures

164. The Verifier's view was that Powerco's proposed programme for the renewal of overhead structures was overstated and as such, not all of the proposed expenditure could be verified. The portion of unverified expenditure was up to \$38 million over the CPP period.

165. Of this, \$29 million was attributed to Powerco's conductor programme, which the Verifier found was not likely to be prudent. The remaining \$9 million of unverified expenditure was due to Powerco's modelling, which the Verifier viewed as being conservative and likely to result in early replacement of some assets.

⁷⁴ These other considerations include alignment with Powerco's rationale for the CPP, and links with a proposed quality standard variation.

⁷⁵ Farrier Swier Consulting "Powerco's Customised Price Path Application" (7 June 2017), page 130 (Table 15).

⁷⁶ Farrier Swier Consulting "Powerco's Customised Price Path Application" (7 June 2017), page 146.

Zone substations

166. The Verifier scrutinised Powerco's proposal for zone substation renewals, and concluded that most of Powerco's proposed expenditure did not appear unreasonable.⁷⁷ In particular, the Verifier found that Powerco's forecast replacement of indoor switchgear was based on a prudent assessment of asset health and safety risks.
167. However, the Verifier was not satisfied that Powerco had justified the proposed renewal of five of its power transformer assets.⁷⁸ The Verifier noted that two of the transformers which Powerco proposed to replace within the CPP period have good asset health indices, and that Powerco had unnecessarily brought forward the replacement of another transformer. The Verifier also found that the replacement of two other transformers could be deferred.
168. As a result, the Verifier concluded that \$5 million of Powerco's proposed renewals capex on zone substations could not be verified.

Secondary systems

169. The Verifier concluded that the majority of Powerco's proposed secondary systems renewal capex did not appear to be unreasonable.
170. The Verifier noted that the proposed expenditure associated with the extended reserves scheme was to comply with an external driver (specifically, the Electricity Authority's new requirements for extended reserves), and that the other forecast expenditure appeared to be reasonable to meet the expenditure objective.
171. The Verifier did question the inclusion of a 10% contingency allowance (amounting to \$926,000).

Submissions on our draft decision for renewals capex

172. There were no specific submissions on the draft decision made about the renewals capex category. However some submitters made general comments about Powerco's need for an expenditure uplift to maintain the reliability of its existing assets; and questioned Powerco's asset management practices (Grey Power and Kamada); while Aurora supported the expenditure uplift.
173. Some submitters also indicated that future technology uptake, such as PV and EV may reduce the necessity for traditional network investment, although Powerco's scenario modelling suggests that new technology uptake by consumers will not be disruptive over the CPP period.

⁷⁷ Farrier Swier Consulting "Powerco's Customised Price Path Application" (7 June 2017), page 153.

⁷⁸ Farrier Swier Consulting "Powerco's Customised Price Path Application" (7 June 2017), page 154.

174. The Commission considers that over a wide range of fleet asset types, considerations of safety, asset condition, newly identified asset “type-issues”, and expected asset end-of-life issues; that Powerco has adequately demonstrated the need for most of their renewals capex. While technology uptake has the potential to disrupt traditional network investment, this uptake is not presently evident, and investment in the network is needed now for assets that are approaching the end of their expected life.

Our final decision for renewals capex

175. Our final decision is to accept \$426 million of the \$450 million renewals capex.
176. In undertaking our assessment of Powerco's proposed renewals capex, we had regard to the Verifier's assessment of Powerco's proposed expenditure and whether it was likely to meet the expenditure objective. In addition to the Verifier's report, we requested, received and analysed further information from Powerco.
- 176.1 In some cases, this led us to accept some of the renewals capex proposed by Powerco but that the Verifier could not confirm as meeting the expenditure objective (such as in relation to overhead conductor renewals and overhead structure renewals).
- 176.2 In other cases, the level of renewals capex that we accepted is less than the level that was accepted by the Verifier (such as in relation to secondary systems capex).
- 176.3 In the case of zone substations, our draft decision was to accept a level of renewals capex that was in line with the Verifier's recommendation.
177. We also took into account the views expressed by interested persons in submissions to the draft decision.

178. In Table B1 below, we summarise our final decisions on renewals capex for the CPP period.

Table B1 Renewals capex during CPP period (five-year totals, real 2016)

Renewals programmes	Proposed	Verified	Final decision	Final decision as % of Proposed
Overhead conductors	\$55m	\$26m	\$55m	100%
Overhead structures	\$178m	\$140m	\$168m	95%
Cables	\$33m	n/a	\$33m	100%
Zone substations	\$72m	\$67m	\$67m	93%
Distribution transformers	\$41m	n/a	\$41m	100%
Distribution switchgear	\$44m	n/a	\$44m	100%
Secondary systems	\$28m	\$27m	\$18m	63%
TOTAL	\$450m	\$260m	\$426m	95%

179. In the remainder of this section, we briefly explain our final decisions for each of the renewals capex programmes.

Overhead conductors

180. Our final decision is to accept Powerco's proposed \$55 million capex on the replacement of overhead conductors during the CPP period.
181. We agree with the Verifier's findings on Powerco's proposed renewals capex in relation to sub-transmission and low voltage overhead conductors. Powerco's proposed expenditure on sub-transmission overhead conductors is directed at addressing 'type issues' with its aluminium conductors and the health of its copper-based conductors, while its proposed expenditure on its low voltage overhead conductors is to allow a more proactive approach to replacing low voltage conductor and fuse devices.
182. In its assessment of the distribution conductor expenditure, the Verifier was not convinced that Powerco's modelled target fault rate was reasonable, and set the verified amount in this category based on the presently observed fault rate across the distribution conductor fleet.
183. We sought more information from Powerco about the observed fault rates of the 'type issue' conductors. The Powerco data demonstrated that considerably higher conductor drop incidents were occurring with 'type issue' conductors.

184. We are satisfied that Powerco's modelling approach, which uses the expected fault rate of 'non-type issue' conductors as a target to aim for over time, is a reasonable modelling approach to identify which 'type issue' conductor sections to replace first.
185. We have also tested the likely reliability benefit of replacing the 'type issue' conductors with the modern equivalent conductors, and when considerations of safety mitigation as it relates to ALARP principles are taken into account, we consider that Powerco has:⁷⁹
- 185.1 Been prudent in identifying the 'type issue' conductors in their fleet; and
- 185.2 Systematically demonstrated which 'type issue' conductor sections to replace first, based on age related deterioration modelling and proximity to more corrosive coastal environments.
186. For the purposes of our final decision, and on the basis of the additional information provided to the Commission, we are satisfied that Powerco's proposed \$55 million capex on overhead conductor renewals meets the expenditure objective.

Overhead structures

187. Our final decision is to accept \$168 million of Powerco's proposed \$178 million capex on the replacement of overhead structures during the CPP period.
188. We generally agree with the Verifier's conclusions in relation to the majority of Powerco's proposed overhead structures renewals capex. However, as discussed above, we consider that Powerco's proposed expenditure on its overhead conductor programme meets the expenditure objective. As a result, we have included the portion of unverified expenditure attributable to the conductor programme as it affects the overhead structures program.
189. However we are unconvinced by Powerco's modelling of green defects and how these may be affected by decisions to extend the serviceable life of green defect assets.⁸⁰ While Powerco has indicated that more accurate field assessments may change the requirement to fully replace an asset, we have seen no evidence in the forecast modelling to reflect this. We have therefore disallowed \$10 million of Powerco's proposed expenditure.

⁷⁹ The Verifier concluded that while Powerco had stated that replacement of the 'type issue' conductor was a safety issue, it had not attempted to quantify the risk to the public nor undertaken an assessment based on ALARP principles. ALARP is 'As Low As Reasonably Practicable' and relates to a framework where identified safety risk is weighed against the means to control that risk. The residual risk of any mitigation should be ALARP and further investment should be judged against the disproportionality of that risk exposure.

⁸⁰ The Verifier defines a green defect as a condition assessment of an asset that requires replacement within three years: Farrier Swier Consulting "Powerco's Customised Price Path Application" (7 June 2017), page 62.

190. For the purposes of our final decision, we are satisfied that \$168 million of Powerco's proposed \$178 million capex on overhead structure renewals meets the expenditure objective.

Cables

191. Our final decision is to accept Powerco's proposed \$33 million capex on cable renewals during the CPP period.
192. We note the following with respect to Powerco's cable renewals programmes:
- 192.1 Four oil-filled sub-transmission cable circuits in the Palmerston North CBD are in poor condition with a history of oil leaks. Powerco is currently planning to replace these cables prior to the CPP period;
- 192.2 Although the health of the overall distribution cable fleet is good, type issues have been identified in some batches of Powerco's 11kV distribution cables, with some cable sheaths becoming brittle and allowing water ingress;⁸¹
- 192.3 Powerco expects renewals of low voltage cables to continue in line with historic trends, with a slight increase during the CPP period to account for ageing of the low voltage cable fleet; and
- 192.4 A key driver for replacement of low voltage boxes is managing safety risk. This is critical as low voltage boxes are at ground level and in close proximity to the public. Powerco is proposing to increase the rate of renewal of low voltage boxes that have been identified as having safety-related risks.
193. In our view, Powerco has adequately justified its proposed expenditure on cable renewals. This is because the main increase in Powerco's proposed expenditure relates to the replacement of low voltage boxes in order to manage safety-related risks.
194. We also note that Powerco's proposed overall expenditure on cable renewals (\$33 million over the CPP period) represents a reduction compared to historic levels of expenditure (\$35 million in the five years prior to the CPP).
195. We are satisfied that Powerco's proposed capex on cable renewals meets the expenditure objective.

Zone substations

196. Our final decision is to accept \$67 million of Powerco's proposed \$72 million capex on the replacement of zone substations during the CPP period.

⁸¹ Powerco considers that over 80% of its distribution cable fleet is unlikely to require replacement in the next 20 years.

197. Having reviewed Powerco's proposal, we agree with the Verifier's findings that the majority of Powerco's proposed expenditure on zone substations is justified. In our view:
- 197.1 Powerco's forecast replacement of indoor switchgear is based on prudent assumptions for safety and hazard control;
 - 197.2 Powerco's forecasts for replacement of load control injection plant and other zone substation assets appear to be reasonable;
 - 197.3 Powerco's proposed replacement of buildings has been assessed against new standards for buildings and foundations; and
 - 197.4 The Verifier has justifiably concluded that the replacement of five transformers should be deferred.
198. For the purposes of our final decision, we are satisfied that \$67 million of Powerco's proposed \$72 million capex on zone substation renewals meets the expenditure objective.

Distribution transformers

199. Our final decision is to accept Powerco's proposed \$41 million capex on the replacement of distribution transformers during the CPP period.
200. In our view, Powerco has justified the additional capex required to bring pole-mounted transformers up to current standards, and to address asset health concerns around ground-mounted transformers.
201. Powerco's proposed renewals capex in this category (\$41 million over the CPP period) is also consistent with historical levels of expenditure (\$38 million in the five years prior to the CPP).
202. For the purposes of our final decision, we are satisfied that Powerco's proposed capex on distribution transformer renewals meets the expenditure objective.

Distribution switchgear

203. Our final decision is to accept Powerco's proposed \$44 million capex on the replacement of distribution switchgear during the CPP period.
204. In our view, Powerco has justified the additional capex on distribution switchgear for safety and maintenance grounds, and to address type issues with cast resin switchgear.
205. Powerco's proposed renewals capex in this category (\$44 million over the CPP period) is also consistent with historical levels of expenditure (\$41 million in the five years prior to the CPP).
206. For the purposes of our final decision, we are satisfied that Powerco's proposed capex on distribution switchgear renewals meets the expenditure objective.

Secondary systems

207. Our final decision is to accept \$18 million of Powerco's proposed \$28 million capex on the replacement of secondary systems during the CPP period. Our decision represents an increase of \$7 million (64%) compared to the five years leading up to the CPP period. We note that accepting Powerco's entire proposed capex on secondary systems results in an increase of \$17 million (160%) compared to the prior five years.
208. We are not persuaded that Powerco's proposal to allow \$10 million for the purchase of ripple receivers in the Tauranga region meets the expenditure objective.⁸² This is because we do not consider all alternative options for achieving the desired outcomes have been sufficiently explored by Powerco.
209. In its submission on our Issues Paper, Contact also questioned Powerco's assumption that continuing to invest in and maintain ripple equipment is the most efficient solution for Powerco's network. Contact submitted that "this assumption may be outdated and is a question the Commission should look into."⁸³
210. Contact also raised concerns about the competitive implications of Powerco's proposed investment in 'behind the meter' load control assets.

We believe Powerco's investment in 'behind the meter load control assets' is in direct competition to potential third party service providers, and will effectively maintain exclusivity of a potential network services market in the area.⁸⁴

211. We accept and agree that improved ripple control capability would enable Powerco to better control demand across its network in Tauranga, but consider other options should be considered. In particular options that may not require the purchase and renewal of these assets in a way that affects the value of the regulated business. For example, most modern advanced meters have a relay included the meter. The advanced meters are owned by metering equipment providers and rented to retailers who then include this cost in the retail rates provided to customers. Metering equipment providers compete for contracts with retailers.
212. While one option is for Powerco to take over ownership of the present equipment, we have not been presented with evidence that this is the only option or the best option for the future. Specifically, after the purchase of the existing stock, Powerco then proposes to set up a communications network which it will own and then renew all of the purchased relays in the Tauranga area. The presented documents are not clear on how this investment would integrate with the existing investment Powerco has in existing ripple control injection communication equipment in the Tauranga area. We are aware of other technologies and providers that are able to

⁸² This is referred to as the Tauranga Information Initiative in Powerco's main CPP proposal.

⁸³ Contact Energy "Submission on Powerco CPP Issues paper" (22 September 2017), page 8.

⁸⁴ Contact Energy "Submission on Powerco CPP Issues paper" (22 September 2017), page 8.

provide some or all of this service and thus consider that Powerco has not demonstrated that the approach presented in the CPP application would be the most cost effective for the long-term benefit of customers.

213. We have therefore excluded \$10 million of Powerco's proposed secondary systems renewals capex. This relates to Powerco's proposal regarding the proposed acquisition of ripple receiver relays in Tauranga.
214. For our final decision, we are satisfied that \$18 million of Powerco's proposed \$28 million capex on secondary systems renewals meets the expenditure objective.

Attachment C Allowance for growth and security capex

Purpose of this attachment

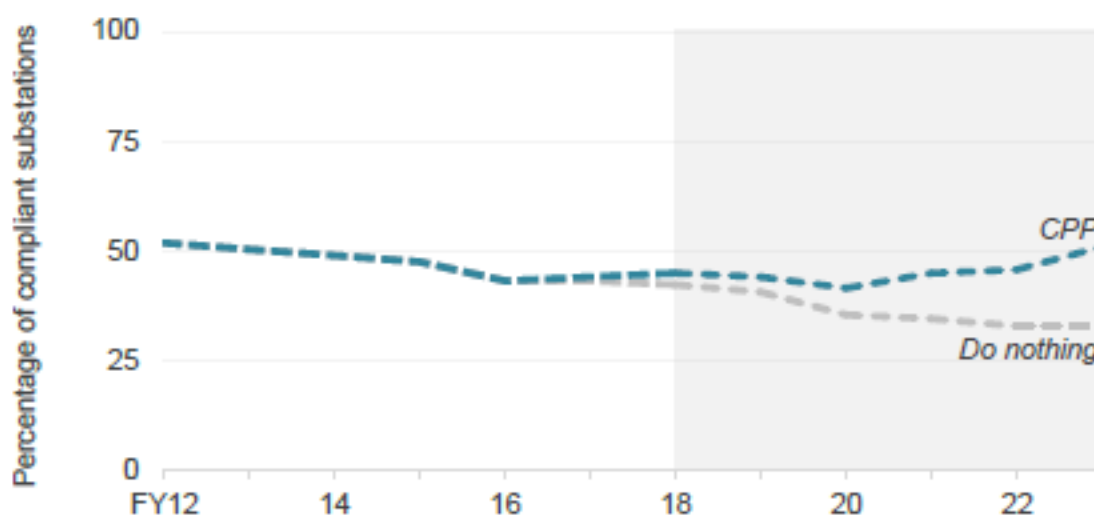
215. This attachment outlines our final decision on the growth and security capex that Powerco will be able to recover from its customers in the CPP period.

Summary of our final decision for growth and security capex

216. We have decided to accept \$281 million of the \$286 million growth and security capex proposed by Powerco as satisfying the expenditure objective. This is unchanged from our draft decision. We have considered the responses received to our draft decision on Powerco's growth and security capex proposals, and we explain the reasons for not changing our draft decision position further on in this attachment.
217. We have decided to reject \$5 million of growth and security reliability capex as we are not satisfied this expenditure meets the expenditure objective.

Powerco's proposed growth and security capex

218. Powerco has requested a total of \$286 million to principally meet growth in electricity demand across its network in the CPP period. This represents approximately 35% of Powerco's proposed total network capex over the CPP period, and is a significant proportion of its entire CPP proposal.
219. The primary drivers identified by Powerco for requesting this investment is that the demand growth is eroding the back-up capacity headroom that historically has been available to allow repairs and maintenance of major items. This investment also provides for alternative supplies to large areas when faults occur in a major piece of equipment involved in supplying many customers.
220. By way of example, Figure C1 below illustrates Powerco's view that the percentage of compliant substations, against its own standard across its network, will continue to significantly reduce without increased investment during the CPP period.

Figure C1 Forecast performance against Powerco security standard

Source: Customised Price Quality Path (CPP) Main Proposal, Powerco, 12 June 2017; Figure 12.4, page 131

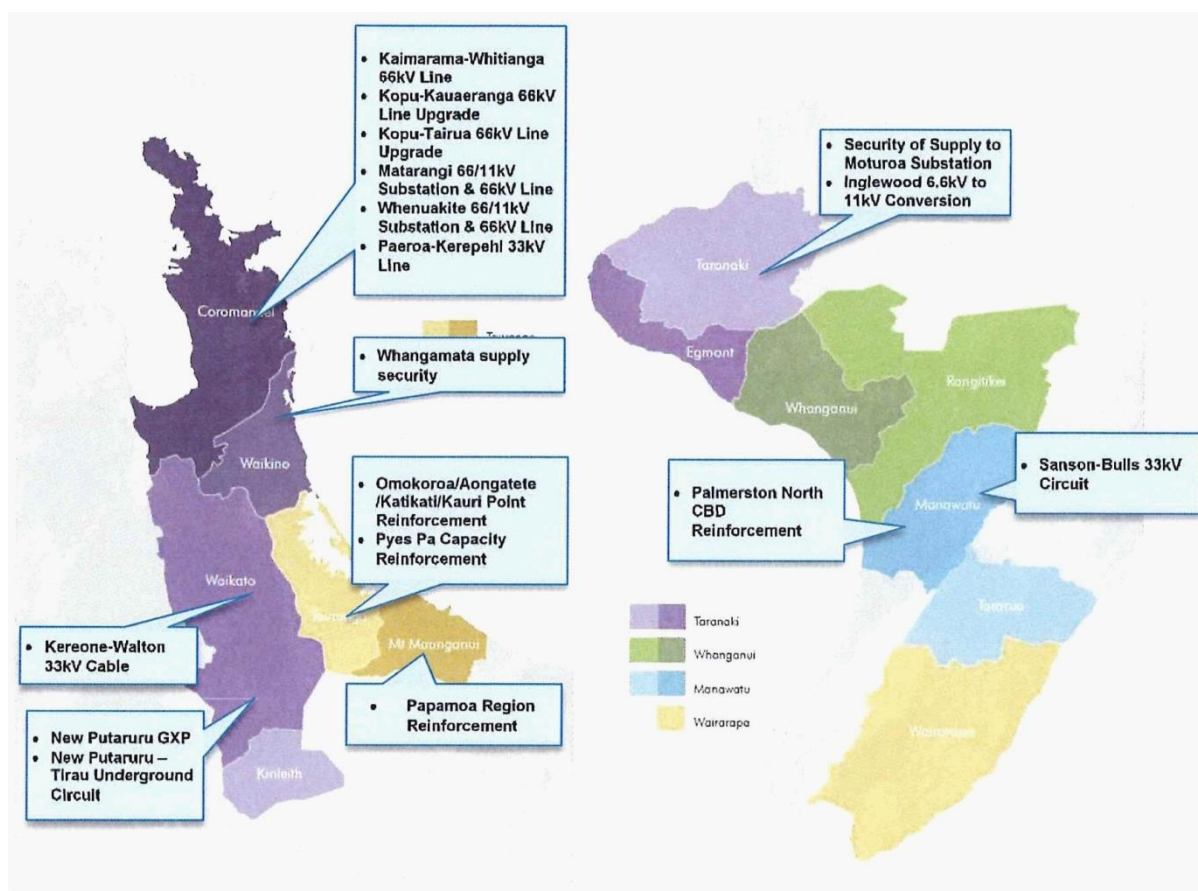
221. Powerco's CPP application defines three key areas of growth and security capex. These are major projects, minor growth and security works and reliability.⁸⁵

Powerco's proposed major growth and security projects

222. Major projects are those growth and security projects with a total required investment above \$5 million.
223. Powerco has proposed that seventeen major growth and security projects are required in the CPP period. Twelve of these major projects are in Powerco's Eastern region (greater Tauranga, Coromandel, South Waikato and Hauraki Plains areas), with the remaining five major projects located within Powerco's Western region. Powerco's proposed major projects are illustrated in Figure C2 below:

⁸⁵ A detailed description of Powerco's proposed major, minor and reliability growth and security projects can be found in pages 127-145 of Powerco's Main CPP Proposal. Further information can also be found in Chapters 11 & 12 of Powerco's Electricity Asset Management Plan 2017.

Figure C2 Powerco's proposed major growth and security projects



Source: Powerco

224. Powerco proposes to increase its investment on major projects over the CPP period by 182% when compared to historical expenditure.

Powerco's proposed minor growth and security projects

225. Minor growth and security works include minor projects with total required investment between \$1m – \$5m, and routine projects where investment required is below \$1m. This category of capex also includes supporting investments in field communications systems.

226. Powerco proposes to increase its investment on minor growth and security projects by 8% when compared to historical expenditure. Therefore, over the CPP period forecast expenditure for minor projects is relatively consistent with historical expenditure levels.

Powerco's proposed reliability growth and security projects

227. Reliability projects include investments in network automation, and Powerco proposes to increase levels of expenditure to improve quality outcomes.

228. The reliability capex proposed by Powerco represents an increase of 29% against historical costs.

229. This expenditure will mainly be focussed in its Western region as historically, Powerco has focussed its expenditure under this category in its Eastern region. It includes proposed investment for assets such as SCADA controlled reclosers, line fault indicators, fuse savers and a proposed \$2.1 million on earth fault neutralisers in the Eastern region, and an innovative waveform recognition trial; a technology that may improve asset management by identifying incipient asset faults.
230. Reclosers, line fault indicators and fuse-savers are tools used to reduce the impact of faults. They do have by-product implications, such as providing additional network information to help inform operational decisions, and tend to help long-term network stability. They facilitate short-term reliability improvements, but they are not a substitute for a long-term renewal program to maintain and/or slowly improve the underlying network quality outcomes over time (i.e. rotten poles still have to be fixed).
231. Powerco notes in its CPP proposal that these projects are important in mitigating the overall impact on customers of asset failures on its network, especially in remote areas.

The Verifier's views on growth and security capex

Major and minor project growth and security capex

232. Powerco initially forecast to spend \$290 million on its major projects and minor growth and security works during the CPP period. Following challenge and review by the Verifier, Powerco's final CPP proposal in these categories of expenditure was reduced to \$265 million.
233. We detailed the findings of the Verifier in relation to Powerco's growth and security capex proposals in our draft decision.⁸⁶

Reliability growth and security capex

234. A concern of the Verifier was that it was problematic for Powerco to demonstrate the forecast decline in reliability in the absence of the CPP. Without this evidence, the Verifier considered it is not possible to confirm what, if any, reliability improvements are required during the CPP period, and the appropriate level of expenditure required to meet the expenditure objective.
235. The Verifier therefore concluded that Powerco's expenditure forecast was overstated, and based upon this proposed that \$15 million of the \$21 million proposed by Powerco could not be verified.

⁸⁶ This can be found under paragraphs 238-251 in our Draft Decision.

Our draft decision for growth and security capex

- 236. Based upon the analysis we have undertaken following the findings of the Verifier, our draft decision was to accept \$281 million of the \$286 million Powerco has proposed in its CPP proposal.
- 237. Of the \$281 million we accepted, \$132 million relates to major growth and security projects, \$133 million is for minor growth and security projects, and \$17 million is for reliability related growth and security projects.
- 238. We considered we should reject \$5 million of reliability growth and security capex, as we were not satisfied that all expenditure in this category met the expenditure objective.

Major and minor growth and security projects

- 239. Following the work of the Verifier, we further reviewed Powerco's major growth and security projects to better understand the modelling and approach that underpins Powerco's proposed investments in the CPP period.
- 240. This workstream included technical site visits, with Powerco staff, to a number of the proposed major and minor projects in the Tauranga, Coromandel, Taranaki and Manawatu areas that form part of Powerco's network. This has enabled us to witness first-hand the particular condition and circumstances of existing assets, the need for these projects and to question at length Powerco staff on the timing of these proposed projects within the CPP period. The discussions included more context on the background, technical implications, present physical asset condition, extent of growth and a physical layout perspective that were difficult to visualise from a desk-top study.
- 241. The visits resulted in requests for further evidence to demonstrate to us these projects were required within the CPP period.
- 242. As a result of those discussions and as outlined in our draft decision, we requested and analysed the Project Overview Documents (PODs) for each of Powerco's major projects and a limited selection of its minor projects. The PODs are important documents in that they set-out the detailed proposals for each project, the problem it is seeking to address, the options that have been considered and the costs of each of these options.
- 243. Further to analysing the PODs, we then also requested that Powerco provide us with an Options Analysis and Economic Evaluation Tool (OAEET) for each of its proposed major projects. The OAEET calculates the estimated costs for each project that feed into the PODs.
- 244. The OAEETs included all capex and opex costs, an assessment of the value of reliability (energy not served), unit costs, electrical losses and load distribution curves that fed into the POD and ensured that Powerco's proposal was the least cost option for addressing security standard and growth needs of each proposed project.

245. We undertook a detailed review of the PODs and a large number of the OAEETs for Powerco's proposed major projects. We have also considered a sample of Powerco's minor projects that predominantly link to its proposed major projects. We concluded these are generally fit for purpose in assessing whether the proposed expenditure met the expenditure objective.
246. We considered both the PODs and OAEETs for each of Powerco's projects provided an assessment of the merits of each proposed project, and that the costs and methodologies applied by Powerco were appropriate.
247. The PODs provided by Powerco are available on our website.⁸⁷ The OAEETs that we requested from Powerco can be provided and explained on request.
248. We did not identify any significant issues or concerns with Powerco's proposals. In our view, there is clearly a need for this investment to occur to safeguard security of supplies, enable better hazard control and meet growth in demand in Powerco's Eastern region. These factors are the primary drivers for Powerco's investment proposals.

Reliability

249. Following the work and recommendations of the Verifier, we also further reviewed Powerco's reliability proposals.
250. While Powerco did not make an explicit linkage between the expenditure uplift and reliability outcomes, or provide a cost-benefit analysis for the investments, we considered that maintaining historical levels of expenditure (across the financial year period 2012-2016) in the auto-reclose program was a reasonable approach. This will also help Powerco to maintain and improve current levels of reliability and quality outcomes.
251. We have decided the growth and security reliability capex illustrated in Table C1 below should be approved for the CPP period. Future improvement reductions relate to the level of efficiencies that can be expected through the roll-out of the other reliability categories. Powerco has included an allowance for future improvements in its modelling, such as asset management improvements, which start to affect the cost of the program from FY22 onwards.

⁸⁷ <http://comcom.govt.nz/regulated-industries/electricity/cpp/cpp-proposals-and-decisions/powercocpp/>

Table C1 Overview of proposed reliability draft decision

Real \$2016, thousands	CPP proposal	Verified amount	Draft decision
SCADA Controlled reclosers, sectionalisers or DA Switches (ACRs)	15,292	0	10,443
Line Fault Indicators (non SCADAised)	1,427	1,427	1,427
Fuse-Savers (SCADAised)	2,525	2,525	2,525
Single phase sectionalisers	642	0	642
Earth fault neutraliser	1,729	1,729	1,729
HiZ waveform recognition trials	371	371	371
Future improvements reduction	641	141	515
Total	21,345	5,911	16,731

Submissions on our draft decision

252. A number of submissions were received in response to our draft decision on Powerco's proposed growth and security capex.
253. Submissions from Grey Power, MEUG, Molly Melhuish and Pat Duignan made specific references to our proposal to allow for specific funding for growth and security reliability programmes, and that may improve reliability to levels that customers are not willing to pay for. We do not detail the content of those submissions here, as they are discussed in Chapter. 3 – Our Evaluation Approach of this final decision.
254. Contact Energy was the only submission that provided substantive comment on some of the individual growth and security capex projects proposed by Powerco.⁸⁸ Contact Energy's submission focused on three main areas:
- 254.1 Third party alternatives should be considered by Powerco and processes should enable this;

⁸⁸ Contact "Powerco CPP draft decision", 15 December 2017 and Contact "Cross-submission on Powerco CPP draft decision", 22 December 2017.

254.2 The investment analysis that underlies the draft decision is flawed; and

254.3 The draft decisions that have been reached by the Commission are inconsistent.

255. To illustrate specific concerns under each of the main areas, Contact Energy concentrated on four themes which are discussed in more detail below.
256. The first theme related to projects in Tauranga. Contact Energy believed that our draft decision for projects in Tauranga was inconsistent, and relied on inadequate major project investment analysis. It agreed with our draft decision not to allow for any specific funding for the purchase of ripple receivers, but indicated we had not made it clear why similar draft decisions had not been reached for Powerco's other Tauranga growth and security capex projects, namely the Papamoa reinforcement, Pyes Pa substation and Northern Tauranga reinforcement projects and where demand side responses have not been market tested leading to non-network options being prematurely dismissed.

We believe this is inconsistent with the determination you have come to in relation to network support in Tauranga. We are unclear, and no reasons have been provided, as to why these other projects should not be approached in exactly the same way as replacing the existing ripple systems.

The requirements you look to impose on Powerco to evaluate the most economical network support in Tauranga is the process by which the other projects could and should also be evaluated.

257. The second theme raised by Contact Energy expressed concern that not all options for the Whangamata growth and security project had been considered. It considered that the POD and OAEET in relation to this project did not provide the appropriate analysis that demonstrated the optimum solution had been proposed by Powerco.
258. It was also put forward by Contact Energy that Powerco did not need to own generation and storage assets, and that in the case of Whangamata, Powerco could procure diesel generation and battery storage services from the competitive market. These could be provided via regulated opex in the view of Contact Energy, and that any battery related project at Whangamata should be a separate network evolution project.
259. The third theme identified by Contact Energy related to external consultation processes. It considered an external consultation process needed to be put in place to ensure third party alternatives were sufficiently considered for any future major projects, and questioned the value of an *ex-post* reporting mechanism for the CPP. The external consultation process suggested by Contact Energy consisted of three stages; the first stage should require a request for proposals for non-network options, the second stage should summarise the investment options (and as is currently contained in the PODs and OAEETs), and the third stage should require further consultation on the final investment decision.

260. In respect of an *ex-post* reporting system, Contact Energy did not agree with our proposal for a CPP Annual Delivery Report, and noted that:

It is the Commission's role to lead the development of standardised, effective consultation processes for third party network solutions. Looking to an industry-driven, passive 'after the event' self-assessment process is not the kind of regulation that is needed to incentivise certain behaviours.

An end of year reporting process is a poor alternative to what we propose and would not be an effective tool that would lead to any material change. It would impose costs on networks for no apparent purpose in preparing documents that would be of no practical use to anyone. It would not serve the purpose of Part. 4.

261. The fourth and final theme raised by Contact Energy centred on maintaining support for elements of Powerco's network evolution capex. We discuss this further in our final decision on network evolution expenditure in Attachment. D of this paper.
262. In response to Contact Energy's submission, Powerco provided a cross-submission that sought to specifically address the concerns raised.⁸⁹ This included further explanation of its proposal for excluding non-network options for the Tauranga related growth and security projects.
263. Powerco also provided further explanation on its proposals for Whangamata, and noted in its cross-submission that it had engaged further with Contact Energy on this particular project.

Our final decision

264. We have decided to accept \$281 million of the \$286 million growth and security capex proposed by Powerco as satisfying the expenditure objective. This is unchanged from our draft decision. After consideration of the responses received to our draft decision, we have decided not to change our draft decision for Powerco's growth and security capex allowance.
265. We decided to reject \$5 million of growth and security reliability capex as we were not satisfied this expenditure met the expenditure objective.
266. In coming to our final decision on the allowance for growth and security capex, we reviewed all submissions and cross-submissions to our draft decision.
267. We also held further discussions with some submitters on their responses to ensure we fully understood the key issues that were of concern to them.

⁸⁹ Powerco "The Commerce Commission 'Powerco Customised Price-quality Path Draft Decision' – Cross-submission", 19 January 2018.

268. We note that Contact Energy in particular made a number of observations and comments in its submission to our draft decision relating to specific aspects of Powerco's growth and security capex proposals. We summarise the key themes raised by Contact Energy and our final decision in respect of each one of those below:

Table C2 Overview of themes raised by Contact Energy and our responses

Issue raised by Contact	Our response	Proposed future action
Projects in Tauranga	<p>We remain of the view that the growth and security capex proposed by Powerco in the Tauranga region is appropriate and meets the expenditure objective.</p> <p>We consider it is appropriate to explore options for future CPP applicants to undertake market testing of major capex proposals, and to demonstrate this has been undertaken as part of future CPP applications.</p> <p>We do not consider it reasonable to expect Powerco to undertake further market testing of network support options at this stage of the CPP application process, and where the IMs do not explicitly require this.</p>	<p>We have decided to accept Powerco's growth and security capex proposals in the Tauranga region.</p> <p>We will consider options for the future market testing of major capex projects as part of our post-CPP review.</p> <p>We will consult on any necessary changes to the existing framework that may be required to make our expectations clear for future CPP applicants.</p>

Whangamata major project	<p>We remain of the view that the growth and security capex proposed by Powerco in relation to Whangamata is appropriate and meets the expenditure objective.</p>	<p>The submissions highlighted a number of points around the detail in the evaluation options, external market testing and the use of bulk diesel generation. We intend to include these ideas in future work streams such as the DPP and CPP review. At this time, however, we have decided to accept Powerco's growth and security capex proposals for Whangamata.</p> <p>We propose to allow capex for Whangamata as per our draft decision.</p>
External consultation process and an <i>ex-post</i> end of year reporting system	<p>We agree that for future CPP proposals, it should be explicitly clear that an applicant will be required to demonstrate it has engaged with external market participants for all potential third party network support options.</p> <p>We do not consider it reasonable to expect Powerco to undertake further engagement of network support options at this stage of the CPP application process.</p> <p>We do not agree that an <i>ex-post</i> end of year reporting system has little value to stakeholders. We consider this is important to hold Powerco to account for the delivery of its proposed programme of works during the CPP period, and this will include growth and security capex projects/programmes.</p>	<p>We will consider options for how CPP applicants should ensure engagement with external market participants as part of our post- CPP review.</p> <p>We will consult on any necessary changes to the existing framework that may be required to make our expectations clear for future CPP applicants.</p> <p>We have decided to proceed with the CPP Annual Delivery Report as set-out in Attachment. K of this final decision.</p>

Network evolution capex	<p>We remain of the view that Powerco has not sufficiently demonstrated the need for network evolution capex expenditure in the CPP period, and the Whangamata growth and security project should not be part of any network evolution capex allowance.</p> <p>We agree with Contact Energy that some opex should be allowed for network evolution projects in the CPP period.</p>	<p>Our final decision in respect of network evolution expenditure is explained in Attachment. D of this paper.</p> <p>We are allowing Powerco \$1.5 million of opex over the CPP period for network evolution projects.</p>
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269. In terms of elaborating further on the points above, and our final decisions in respect of those points, we consider it is advantageous to elaborate on these further.

Projects in Tauranga

270. We concur with Contact Energy supporting our decision not to allow \$10 million for the proposed purchase of ripple receivers in Tauranga. We set out in our draft decision why this project was rejected.
271. It is important to provide further clarity as to why we have accepted Powerco's other growth and security projects proposed for the Tauranga area. In our view, the PODs and OAEETs provided sufficient analysis that enabled various investment options to be considered consistent with the requirements of the IMs and the expenditure objective. Much of this expenditure is associated with putting in place an adequate sub-transmission network both ahead, and in conjunction with, the fast paced urban development occurring to the north and south of Tauranga. Our view is that investment in adequate network 'back bone' sub-transmission infrastructure is needed to support this development. It should be noted that the proposals did not include significant steps to modify the network architecture via increases in sub-transmission voltages.
272. Both the Verifier and ourselves challenged Powerco on the need and robustness of its proposals by undertaking both desktop reviews and site visits, and reviewing Powerco's AMPs and its Network Development Plan which provided detail on the issues faced in the Tauranga area. We note submitters' views that much of this information could have been made available earlier in the CPP process to better inform potential options prior to Powerco preparing its CPP application, and we will consider how this can be achieved in future as part of our post-CPP review.

273. We note that much of the data contained within the PODs and OAEETs is subject to debate and differing opinions, such as the value of VoLL and the extent of possible non-network solutions that should be considered, but in our view Powerco could not have reasonably done more to justify its proposals against the existing IM criteria and the expenditure objective. Powerco has assured us that it will work with third parties to explore future options for non-network solutions to meet growth and security across its regions, and not just in the Tauranga area.
274. As the incumbent EDB in the Tauranga area, it is Powerco's responsibility to ensure its network is operated as safely and efficiently as possible when considering the likely future demands on its network. We consider Powerco's CPP growth and security investment proposals achieve this balance, and we will hold Powerco to account to ensure it delivers the projects it has promised for the longer-term benefit of its customers.

Whangamata major project

275. We are of the view that Powerco's proposals for addressing network security issues at Whangamata are appropriate. From our analysis of Powerco's proposal for Whangamata, we consider the battery storage/diesel back-up solution is the best option for addressing the security of supply needs of customers in the CPP period. It may be that a further 33kV line is also required at some future point in time, but this is not achievable within the CPP period, and in our view the proposed battery/diesel hybrid solution presents clear benefits for addressing the immediate needs of customers in the area.
276. We agree with Powerco that this solution provides many qualitative benefits associated with the opportunity to trial a grid-scale battery storage system to support an isolated distribution network such as Whangamata. It is clear to us that Powerco, and EDBs more generally, will gain significant technical understanding from delivering this solution and that the underlying analysis supports this view.
277. Given the innovative nature of this proposed solution, we did consider whether funding for this project should be allocated as network evolution capex rather than growth and security capex. However, because there is a clear security of supply issue at Whangamata that requires expenditure on traditional investment solutions and assets, we have decided this should remain as growth and security capex. We have made it clear to Powerco we expect specific updates on the progress of the Whangamata project as part of the CPP Annual Delivery Report to ensure the expected benefits and security of supply issues are being addressed as planned.
278. We appreciate the time and effort of Contact Energy in providing substantive comments on Powerco's proposals for Whangamata. This was useful for us in further challenging Powerco on its proposals for Whangamata and to test our own analysis of the preferred solution put forward by Powerco. While we consider that Powerco will need to own and operate its proposed solution given the degree of complexity involved, Powerco has assured us it will work with third parties in seeking battery and other services from third party market participants as part of its solution for Whangamata.

External consultation process

279. We welcome Contact Energy's submission on how the external consultation process could be improved for developing investment proposals for CPP applications. We agree that for future CPP proposals, it could be made explicitly clear that applicants will be required to demonstrate they have engaged with external market participants for all potential third party network support options.
280. We appreciate that some stakeholders consider the consultation undertaken by Powerco in relation to its major growth and security capex proposals could have been improved, and we are committed to ensuring this is considered for future CPP applications. We will consider this as part of our post-CPP review and we will consult on any necessary changes to the existing framework that may be required to make it explicitly clear for future CPP applicants.
281. We also note Contact Energy's comments around the effectiveness of an *ex post* end of year reporting system. As noted above, we agree that it may be possible for more to be done to ensure CPP applicants consult with market participants ahead of proposing significant capex driven projects.
282. We have consulted with Powerco on the format of the CPP Annual Delivery Report and timed its delivery to align with the annual information disclosures under Part 4 of the Act. The format of the CPP Annual Delivery Report represents an extension to already established disclosures and is designed to provide information in a way that non-technical stakeholders may find useful. This will allow all stakeholders the ability to track performance during the CPP period. We will also be holding a series of technical meetings with the applicant during the CPP period and further clarification meetings may take place as required. It is believed that through the period there will be an expectation from stakeholders, as demonstrated by the Contact Energy submission, to monitor progress with a focus on past achievements and forward plans.
283. However, we disagree with Contact Energy's view that this negates the need for some form of *ex-post* reporting. We consider a combination of the two approaches may be the optimum for future CPP applications, and will consider this further as part of our post-CPP review. Our final decision in respect of our proposed CPP Annual Delivery Report is described in more detail in Attachment. K of this paper.

Network evolution capex

284. We remain of the view that Powerco has not sufficiently demonstrated the need for network evolution capex expenditure in the CPP period. We specifically address our final decision on this subject in more detail in Attachment. D. We have decided that, in response to Powerco's and Contact Energy's submissions to our draft decision, we will allow Powerco \$1.5m of opex over the CPP period for network evolution projects.

Attachment D Allowance for network evolution expenditure

Purpose of this attachment

285. This attachment outlines our final decision on the expenditure that Powerco proposed for network evolution in the CPP period.

Summary of our final decision for network evolution expenditure

286. We are allowing \$1.5 million of opex for network evolution but reject the \$18 million of network evolution capex proposed by Powerco. This is a change from our draft decision where we proposed not to allow expenditure for Powerco's network evolution activities in the CPP period. We are not satisfied that Powerco's proposed capex expenditures for network evolution meet the expenditure objective.

287. As we explain in this attachment, we are generally of the view that investment in network evolution can be in the long-term benefit of consumers. However, we consider Powerco had not adequately developed its network evolution strategy, or provided sufficient tangible justification underpinning how consumers were likely to benefit from the specific projects it proposed to justify approving \$18 million capex proposed by Powerco.

288. We are allowing capex for a range of innovative investments that would directly benefit consumers in the growth and security reliability capex programme.⁹⁰ We are also allowing for a non-traditional innovative supply solution for Whangamata (a diesel genset and inverter with a battery hybrid solution) in our final decision. We explain our decisions in respect of these initiatives in more detail in Attachment C as they do not form part of Powerco's network evolution proposals. This particular project does have a significant innovation component and as such Powerco has agreed to share the technical understanding from this project with the wider industry. This knowledge will be particularly pertinent to others that have single lines to areas where load fluctuates significantly, and customers would have difficulty funding additional assets to back-up these areas under full peak load situations, eg due to holiday home load.

Powerco's proposal for network evolution capex

289. Powerco's CPP proposal included \$18 million of capex on network evolution projects.⁹¹ The proposed capex represented at least a 370% uplift compared with the actual expenditure in the five years leading up to the CPP period.⁹²

⁹⁰ Such as earth fault neutralisers, fuse savers, line fault indicators, single-phase sectionalisers, and the waveform recognition trial.

⁹¹ A list of the main network evolution programmes Powerco has identified can be found in Box 13.4 on page 156 of Powerco's main proposal.

290. Powerco explained in its proposal that these projects are intended to support the transition to a more flexible, dynamic network that can respond more quickly and efficiently to changing load patterns and could be tailored to customer requirements.
291. In its submission to our Issues Paper, Powerco summarises the justification for this capex as follows:⁹³

We have adopted a corporate objective to evolve to a distribution system integrator to prepare our network for the customer-led changes we expect will occur in the electricity market, as well to maximise the potential benefit from technology developments.

To achieve this, we have proposed a programme of investments to trial new network technologies. These investments have a distribution network focus, and include programmes that will deliver automatic fault detection and location, real time asset rating, advanced asset condition monitoring, increased visibility of network performance, self-healing networks and integrating energy storage to defer other network investments.

Being ready to effectively manage the implications of the changes occurring in the customer requirements, particularly keeping our network stable in the face of two way power flows, rapidly varying local generation levels and potential significant short-term peak load increases, will avoid significant costs when these arise. This will be from our ability to substitute innovative, enhanced network (and non-network) solutions for large-scale conventional network reinforcements.

Emerging technology also poses many opportunities to enhance the manner in which we build and operate our networks. Higher asset utilisation and longer asset lives lead to reduced investment requirements, and enhanced monitoring could enhance network reliability without increased costs.

292. We note that in its Electricity Asset Management Plan 2017, Powerco explains it has not yet initiated the development and publication of a formal network evolution strategy. In particular, Powerco outlines that:⁹⁴

While we have been evolving with technology developments to date, this has been somewhat ad hoc – driven by direct needs. One of our core goals for the coming year is to develop and publish a formal network evolution strategy. The strategy will also contain a detailed roadmap of how we intend to transform ourselves to ensure our readiness for the future. Given that our operating environment is anticipated environment is anticipated to continue to change, this will only be the first step – the roadmap will have to continuously evolve.

⁹² This is illustrated in figure 22 on page 171 of the Verifier's report. We note that the five years leading up to the CPP period include three years of actual (2014-2016) and two years of forecast expenditure (2017-2018). Actual capex in this period is negligible, ie, the only significant capex on network evolution in the five years leading up to the CPP period is still based on a forecast of future spend.

⁹³ Powerco "Submission on Powerco CPP Issues paper" (22 September 2017), page 14.

⁹⁴ Powerco "Asset Management Plan 2017" (12 June 2017), page 144.

The Verifier's views on network evolution capex

293. During the engagement process with the Verifier, Powerco adjusted its network evolution capex proposal downward by \$9 million.⁹⁵ However, the Verifier concluded in its final verification report that:

Powerco's proposed expenditure for network evolution is overstated.⁹⁶

294. The Verifier also identified some inconsistencies in Powerco's reasoning across some of its planned investments. In particular, the Verifier highlighted that:

Powerco stated elsewhere that 'uptake rates of solar PV, energy storage devices and EVs on the network is extremely low and, at current growth rates, will not have a material impact within the next ten years'. This statement is at odds with the plan to invest considerable capex during the CPP in this area.

295. It is the Verifier's view that capex of \$2 million (accumulating to \$10 million across the CPP period) would be more appropriate.⁹⁷ However, when talking to us, the Verifier explained that such an amount is rather an informed estimate based on what EDBs spend on network evolution in Australia than the result of an evidence based analysis on Powerco's proposals.

Submitter's views on network evolution capex

296. Submissions to our Issues Paper and Draft Decision on this subject were divided. Network companies such as Powerco, Aurora, Transpower and Orion supported network evolution funding. Contact Energy supported some aspects of Powerco's proposals to allow customer funding for future network projects. However, user groups such as MEUG and some responses from individual submitters, did not support any explicit funding in that regard.

Submissions on our Issues Paper

297. An analysis of the submissions we received to our Issues Paper was included in our draft decision.⁹⁸
298. TDB Advisory Ltd, on behalf of ERANZ, focussed its submission on the importance of constraining the allowance we may consider including in our draft decision to activities that fall within regulated services. It explains that:

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.⁹⁹

⁹⁵ This was largely achieved by moving projects from network evolutions to the system renewals portfolio.

⁹⁶ Farrier Swier "Final Verification Report for Powerco" (7 June 2017), page 173.

⁹⁷ Farrier Swier "Final Verification Report for Powerco" (7 June 2017), page 173.

⁹⁸ This can be found in paragraphs 287-296 of our Draft Decision.

299. Fonterra placed emphasis on the precedent setting nature of our decision and considered the CPP was an opportunity to be more efficient, and for knowledge to be shared across EDBs to avoid duplicated costs falling upon consumers across New Zealand.¹⁰⁰
300. Contact Energy supported parts of Powerco's proposed network evolution, but also noted it was concerned that:¹⁰¹
- Powerco's planned network evolution capex appears to be primarily focused 'internally', on testing and developing new Powerco non-network solutions, rather than engaging externally to leverage services delivered by a competitive market.
301. Contact Energy also noted it had two key areas of concern with Powerco's network evolution capex proposals. These areas included:
- 301.1 absence of investment in control systems which will facilitate usage of third party network support resources; and
- 301.2 the development of Powerco's non-network solutions, and the perceived direct competition issues with potential energy service providers across Powerco's network.

Submissions on our draft decision

302. In addition to the responses we received on our Issues Paper, a number of further submissions were received in response to our draft decision.
303. Powerco was surprised that we had discounted all of its proposals across its entire network evolution portfolio, and suggested we should review the merits of each individual project on a standalone basis.¹⁰²
304. Powerco also provided an independent expert review of its network evolution proposals by Dr Allan Miller.¹⁰³

⁹⁹ TDB Advisory on behalf of ERANZ "Submission on Powerco CPP Issues paper" (22 September 2017), paras 6.5-6.6.

¹⁰⁰ Fonterra "Submission on Powerco CPP Issues paper" (22 September 2017), para 5.3.

¹⁰¹ Contact "Submission on Powerco CPP Issues paper" (22 September 2017), section 3, page 5.

¹⁰² Powerco "The Commerce Commission "Powerco Customised price-quality Path' Draft Decision consultation paper", 15 December 2017, paras 20-27.

¹⁰³ Dr. Allan Miller "Assessment of Powerco's Network Evolution Plans", 15 December 2017.

305. Aurora supported Powerco’s network evolution proposals, and suggested that retailer views expressed in response to our Issues Paper on network evolution expenditure should be dismissed, and that it was not clear in our draft decision whether retailer views had influenced our draft decision.¹⁰⁴

We raise this because we consider the retailer submissions (Contact Energy, ERANZ & TDB Advisory) to be flawed and materially self-serving. The retailer submissions do not provide any relevant or helpful basis for making a decision on whether to approve Powerco’s network evolution capex proposal.

We would urge the Commission to reconsider its position on network evolution expenditure. Our view is that Powerco’s proposal for modest network evolution expenditure provides a relatively low risk (for consumers and Powerco) opportunity to test and develop new network technologies and to evaluate how consumers use of emerging technology will affect and influence the provision of network services into the future.

306. Aurora also expressed disappointment that the discussion around network evolution and what EDBs should and should not be allowed to do was being raised again as part of the CPP process.

The Commission correctly noted that “Some submitters in (the IMs review) process (retailers in particular) sought to constrain EDBs from fully using (ie, owning and operating) new technologies, in particular by restricting the inclusion of certain assets classes into the regulated asset base (RAB). We did not accept that approach...

The debate over what EDBs should and should not be allowed to do was then re-litigated in the Electricity Authority’s Mass Participation consultation and now, regrettably, is being re-litigated yet again in the Powerco CPP determination process.

307. Molly Melhuish provided useful links, references and examples of where non-network solutions are being deployed in other jurisdictions, and agreed with our draft decision not to allow network evolution capex. However, this was qualified by acknowledging that network evolution can result in long-term benefits for consumers, and that it is essential for non-network solutions to be developed to improve reliability.

308. Fonterra agreed with our draft decision to reject funding for Powerco’s network evolution proposals.¹⁰⁵

The rejection of the \$18 million for network evolution is supported as it means that a precedence for bringing the development of potentially new revenue streams into the CPP/DPP does not occur.

¹⁰⁴ Aurora “Powerco’s proposal to customise its prices and quality standards: Draft decision”, 15 December 2017, section 4.

¹⁰⁵ Fonterra “Powerco’s proposal to customise its prices and quality path standards draft decision”, 14 December 2017, para 1.2.

309. Contact Energy supported elements of Powerco’s network evolution funding.¹⁰⁶ It also believed any battery funding associated with the Whangamata major growth and security project should be included as network evolution funding (as opposed to growth and security capex). It was also suggested that funding should be available to support network support markets, and that this would require the Commission to approve network evolution opex rather than purely capex.
310. Contact Energy also provided a cross-submission that further elaborated its views on network evolution expenditure.¹⁰⁷ This agreed with our view that Powerco needed to provide more justification of customer benefits, but also suggested that we should undertake a more thorough review of each individual project. Contact Energy did not support three specific areas of Powerco’s network evolution proposal covering energy storage, demand management and integrating community energy schemes.
311. In response to the report prepared by Dr Allan Miller in support of Powerco’s proposals, Contact Energy noted that:

The report demonstrates a limited understanding of which activities are a natural part of the monopoly service, and which activities could be supplied by contestable markets. Powerco does not yet appear to have determined what its role, as a regulated monopoly service provider, is in relation to each network evolution activity. We remain concerned that Powerco’s ‘Distributed System Integrator’ vision includes a foray into competitive markets, and that elements of any approved network evolution regulated funding will be used to compete with private capital in developing customer energy services.

The report provides little or no detail on actual plans and projects that require network evolution funding. It is difficult to see how the report could provide the Commission with any evidence that Powerco has further developed its network evolution strategy or demonstrated what the benefits would be to consumers of Powerco’s regulated lines service, who would be paying for the network evolution funding.

Our final decision for network evolution expenditure

312. We propose to allow \$1.5 million of opex for network evolution but reject the \$18 million of network evolution capex proposed by Powerco. This is a change from our draft decision where we proposed to reject all of Powerco’s \$18 million proposed expenditure for network evolution activities in the CPP period. We are not satisfied that this expenditure meets the expenditure objective.
313. As we explain in this section, we are aware that investment in network evolution can be to the long-term benefit of consumers. In response to Powerco’s submission to our draft decision, we have again reviewed the projects proposed on an individual basis. However, we consider Powerco has not provided sufficient tangible justification underpinning how consumers are likely to benefit from the specific projects it is proposing to undertake.

¹⁰⁶ Contact “Powerco CPP draft decision” (15 December 2017), paras 5.1-5.3 and Appendix. A

¹⁰⁷ Contact “Cross-submission on Powerco CPP draft decision” (22 December 2017).

314. In particular, we consider that:
- 314.1 Powerco has not developed a joined-up network evolution strategy that identifies how and where all of the projects fit together or why they are needed now; and
 - 314.2 The benefits to consumers, and when these can be expected, are not sufficiently identified or articulated in Powerco's individual business cases for each of the network evolution projects it proposes.
315. As requested by Powerco, we re-examined the individual projects proposed, but remain of the view that it is difficult to justify how these meet the expenditure objective and why customers should be expected to fund these initiatives where the benefits are not immediately clear.
316. We agree with the views of Contact Energy, Powerco and other submitters that there is a need to support networks to become more flexible and dynamic in responding to changing demands. However, it is not clear to us that we should allow customers money to fund all of these initiatives, and that a trade-off needs to be made that reflects this.
317. In deciding how to arrive at an appropriate trade-off, we note the level of network evolution expenditure proposed by Powerco in its CPP application is not consistent with its historical levels of network evolution expenditure. Powerco's own proposal and the findings of the Verifier note that, in the five year period prior to the CPP application being received, actual expenditure by Powerco on network evolution activities amounted to \$1.5 million. This is a significant difference between the \$18 million proposed by Powerco for the five year CPP period.
318. Network evolution expenditure is likely to offer benefits to stakeholders other than consumers (such as shareholders and other non-network market participants through more efficient ways of working and potential new commercial opportunities) and we would expect to see those other stakeholders also contribute to the cost of funding these initiatives and investments.
319. We also consider market participants including Powerco's customers may have a role to play in the delivery of some of these initiatives via consultation to determine how they should be progressed.
320. Given the difficulties in identifying the respective roles and responsibilities that all industry stakeholders should play in facilitating the uptake of new technologies, we have decided to allow \$1.5 million of opex in the CPP period. This should allow Powerco to prioritise and undertake some network evolution related projects. It is also important to note that this does not preclude Powerco from pursuing other network evolution related initiatives, but our view is that Powerco's shareholders and other market participants will pursue these where there are clear benefits to be achieved.

Emerging technologies have the potential to deliver significant benefits to consumers

321. In our recent review of the IMs, we acknowledged the potential for significant change to arise from the combination of falling costs, improving performance and increasing capabilities of some new technologies, new business models (especially in the spaces currently occupied by EDBs, electricity retailers and generators), and evolving consumer preferences. We also noted that:

These developments present opportunities and challenges for EDBs, and have the potential to deliver significant benefits to consumers.¹⁰⁸

322. We continue to be of the view that the provision of a reliable supply of electricity can be achieved in many ways, beyond using traditional lines-based solutions. We encourage EDBs to consider non-traditional solutions as they may promote greater benefits to consumers than the more traditional solutions. We have:

322.1 required EDBs to consider such alternatives through the long-standing requirement for the AMPs to evaluate non-network solutions;

322.2 highlighted previously some of the ways EDBs have already deployed new approaches and technologies to the benefit of their consumers;¹⁰⁹ and

322.3 through the IM review, sought to ensure that our rules and regime more generally do not discourage suppliers (or others) from using new technology and new business models for their and consumers' benefit.¹¹⁰

323. In our recent review of the IMs, we gave extensive consideration to emerging technologies and the IM requirements which may affect the deployment of new technologies and approaches. Some submitters in that process (retailers in particular) sought to constrain EDBs from fully using (ie, owning and operating) new technologies, in particular by restricting the inclusion of certain assets classes into the regulated asset base (**RAB**). We did not accept that approach as, among other reasons, we considered there were:¹¹¹

323.1 potential benefits to consumers in the form of economies of scope; and

323.2 transaction and coordination cost efficiencies from EDBs being able to own and operate such assets as part of their operations.

¹⁰⁸ Commerce Commission "Input methodologies review decisions: Topic paper 3 – The future impact of emerging technologies in the energy sector" (20 December 2016), para X4.

¹⁰⁹ Commerce Commission "Input methodologies review decisions: Topic paper 3 – The future impact of emerging technologies in the energy sector" (20 December 2016), para 66.

¹¹⁰ Commerce Commission "Input methodologies review decisions: Topic paper 3 – The future impact of emerging technologies in the energy sector" (20 December 2016), para X7 and Chapters 3-4.

¹¹¹ Commerce Commission "Input methodologies review decisions: Topic paper 3 – The future impact of emerging technologies in the energy sector" (20 December 2016), paras 188-212.

324. In the IM review we also considered whether incentives ought to be introduced to encourage the greater use of emerging technologies. We declined to do so as:¹¹²

324.1 we considered that the Part 4 regime provides adequate incentives on EDBs to innovate; and

324.2 we are not convinced that further explicit innovation incentive mechanisms, funded by consumers, are likely to be in their interests.

Wider implications of our final decision

325. In reaching our final decision we are mindful too that our approach in regards to the network evolution spend may be seen as setting a precedent for other such expenditure assessments, including through future CPPs and DPPs. As with Powerco's proposal, we encourage network businesses to consider questions of the kind outlined above before committing significant expenditure in this area, or seeking additional line charge revenue to fund fully the cost of these initiatives.

326. Our final decision to allow \$1.5 million of opex in the CPP period is based upon Powerco's expenditure on network evolution activities over the previous five year period prior to its CPP application being received. We consider that our decision to not allow \$18 million of capex on the network evolution programme should still allow Powerco to progress its deployment of non-traditional solutions. This is because:

326.1 Powerco is an established leader in non-lines solutions for remote communities through its basepower initiative, and will likely continue to seek opportunities to deploy such technology where appropriate and possible;

326.2 We have allowed growth and security expenditure for the Whangamata initiative, and Powerco has financial incentive to seek further such solutions where they are more efficient than more traditional solutions; and

326.3 Our final decision also allows expenditure for a range of innovative network investments that will directly benefit consumers in the growth and security-reliability capex program.¹¹³

327. The overall CPP final decision package provides Powerco with a significant increase in aggregate line charge revenue, and will allow an increased level of expenditure by Powerco on its network. Powerco will prioritise its expenditure opportunities and decide which initiatives and projects it should undertake before others.

¹¹² Commerce Commission "Input methodologies review decisions: Topic paper 3 – The future impact of emerging technologies in the energy sector" (20 December 2016), paras 62-66.

¹¹³ Such as earth fault neutralisers, fuse savers, line fault indicators, single-phase sectionalisers, and the waveform recognition trial.

We encourage Powerco to further develop its network evolution strategy and focus upon the areas we have highlighted above. We consider it is not appropriate to expect consumers to pay for capex network evolution investments where the benefits to them have not been identified as part of a comprehensive investment strategy.

Attachment E Allowance for ICT capex

Purpose of this attachment

328. This attachment outlines our final decision on the ICT capex that Powerco will be able to recover from its customers in the CPP period.

Summary of our final decision for ICT capex

329. We have accepted the \$53 million of ICT capex proposed by Powerco as satisfying the expenditure objective. We note this is unchanged from what we proposed in our draft decision as the submissions we received did not change our view.

Powerco's proposed ICT capex

330. Powerco has requested a total of \$53 million to improve its ICT capability over the CPP period.
331. Powerco's ICT capex includes proposals for two main items of expenditure, these being business as usual ICT activities and a new Enterprise Resource Planning (ERP) solution.
332. Business as usual activities include the provision and replacement of computers, electronic notebook devices, servers, printers, mobile devices and networking equipment. It also includes business as usual software and information system. Powerco forecasts this expenditure to be approximately \$30 million over the CPP period.
333. The ERP solution is a specific one-off project that seeks to replace Powerco's core IT systems. Powerco considers that its existing systems are due for renewal within the CPP period, and that a bespoke ERP system that is specifically tailored for the needs of EDBs is the best long-term option for customers, and will enable Powerco to support the delivery of its wider investment program. Powerco forecasts ERP expenditure to be approximately \$23 million over the CPP period.
334. We provided a more comprehensive summary in our draft decision paper. The full detail is provided in Powerco's CPP Main Proposal, Chapter 14.

The Verifier's views on ICT capex

335. The Verifier concluded that Powerco's ICT capex proposals are well justified and meet the expenditure objective.
336. This is because Powerco has demonstrated that renewal of equipment is to be undertaken consistent with historical performance and is in line with common industry practice. Furthermore, the Verifier considered the need for replacement of ICT assets is required, and that the ERP planning process has been undertaken in an efficient manner that has been well documented.

337. In the view of the Verifier, Powerco should be able to deliver its proposed ICT program in the CPP period as forecast, and no concerns were raised by the Verifier in this regard.
338. We provided a more comprehensive summary of the Verifier's findings in our draft decisions paper.

Our draft decision for ICT capex

339. Based upon the further analysis we had undertaken and further to the findings of the Verifier, our draft decision was to accept Powerco's proposed \$53 million for ICT capex in the CPP period.

Submission on our draft decision

340. Only Fonterra submitted on our draft decision for ICT capex. Fonterra did not provide a view on whether our proposed allowance was appropriate, but pointed out some of the risks associated with a poor delivery of the ERP project. In particular, Fonterra noted that:

The implementation of a new ERP solution as funded in the ICT capex for value of \$23 million has not been identified in the decision as a potential risk for cost over runs and potential of negative impact on delivering Powerco's main capex projects if implementation issues occur.¹¹⁴

Our final decision for ICT capex

341. In coming to our final decision on the allowance for ICT capex, we took into account Fonterra's submission on our draft decision. In light of this, we retain our draft decision to accept Powerco's proposed \$53 million for ICT capex in the CPP period.
342. In response to Fonterra's submission on our draft decision, we are more concerned about the impact of potential implementation issues the ERP project could have on the delivery of Powerco's capex and opex initiatives than the impact of possible cost overruns.
343. This is because possible cost overruns would be dealt with under the IRIS mechanism, whereas implementation issues that result in delays and/or sub-optimal implementation outcomes may prevent Powerco from achieving some of the permanent cost efficiencies Powerco is forecasting for the CPP period and is aiming to achieve in the longer term. More importantly, some of the benefits associated with a new ERP system, such as efficient work volume growth and better data and information to drive enhancement in asset management practices, may be at risk resulting in sub-optimal deliveries of Powerco's various initiatives.

¹¹⁴ Fonterra "Powerco's proposal to Customise its Prices and Quality Path Standards Draft Decision", 14 December 2017, para 1.3.

344. We acknowledge these are real risks, however, we do not consider that we can mitigate these at this stage. We will nevertheless require Powerco to report on progress and the realisation of some specific benefits associated with the implementation of the new ERP system in the CPP Annual Delivery Report. At the very least, this ensures transparency and provides a platform for Powerco and its stakeholders (including ourselves) to discuss any mitigating measures at a later stage.
345. In the remainder of this attachment, we explain our reasons for our final decision.
346. Following the work of the Verifier, we reviewed the supporting business cases submitted by Powerco in support of its ICT capex proposals. We did not identify any abnormalities in Powerco's proposals that would suggest this investment is not required or is not appropriate in the CPP period.
347. As part of a series of technical site visits to Powerco, we also held further discussions with key Powerco staff concerning their ICT proposals. We felt this was necessary as we wanted to assure ourselves that this investment is needed, that Powerco has sufficiently considered its future ICT needs and that a comprehensive plan exists to achieve the successful implementation of the proposed ICT capex over the CPP period.
348. We also considered it important to satisfy ourselves that Powerco has adequately identified all of its future business needs in respect of its proposed ERP solution. We considered this important given that Powerco is requesting an additional \$23 million for the implementation of this solution.
349. We initially had concerns that not all of Powerco's business needs had been identified for inclusion within the ERP solution but, as a result of the further questions we asked Powerco, we were satisfied these had been considered and that Powerco had taken all reasonable steps to assure itself this had been done to an appropriate standard.
350. We considered this was important in minimising the need for Powerco to make subsequent changes to the design and construct of the ERP solution at a later date, as this may lead to less optimal outcomes for consumers who may be expected to bear these costs of any subsequent changes or system modifications in future.
351. As a result of our further review and questioning of Powerco staff, we agree with the Verifier that \$53 million of expenditure is appropriate for the CPP period in relation to ICT capex.

Attachment F Allowance for customer connections, asset relocations and facilities capex

Purpose of this attachment

352. This attachment outlines our final decisions for other capex contained within Powerco's CPP proposal that is not included in a specific attachment elsewhere within this decision paper.
353. These other capex categories include customer connections, asset relocations and facilities.

Summary of our final decision for customer connections, asset relocations and facilities capex

354. We have accepted the \$65 million capex proposed by Powerco for the CPP period as satisfying the expenditure objective. We note this is unchanged from what we proposed in our draft decision as we did not receive any submissions or further information on the issue.
355. This represents \$51 million for customer connections, \$4 million for asset relocations and \$10 million for facilities capex.

Powerco's proposed customer connections, asset relocations and facilities capex

356. Powerco has requested a total of \$65 million across these three capex categories during the CPP period.
357. Below is a very short summary of Powerco's proposed investments. We provided a more comprehensive summary in our draft decision paper. The full detail is provided in Powerco's CPP Main Proposal, Chapters 13 and 14.

Customer connections

358. Customer connections are part of Powerco's network capex for the CPP period, and include expenditure required to facilitate timely and efficient connections to Powerco's network. It also includes works associated with upgrading supplies to customers.
359. Powerco proposed \$51 million for customer connections in the CPP period. It is important to recognise that capital contributions are generally required to offset the costs of connections, and in the majority of cases customers pay the bulk of the costs. Therefore, the \$51 million proposed by Powerco over the CPP period does not include customer capital contributions.

360. Powerco has assured us that it generally requires capital contributions for connecting customers, and that in most cases the requesting customer pays the majority of the costs.¹¹⁵

Asset relocations

361. This category of expenditure relates to those activities where Powerco is required to relocate its assets as a result of other infrastructure requirements, such as the construction of new roads and other utility services.
362. As is the case with customer connections, Powerco requests capital contributions from third parties who request existing assets to be moved, and therefore capex net of contributions is the basis for Powerco's forecasts during the CPP period. This amounts to just \$4 million of capex over the CPP period.

Facilities

363. Powerco's facilities capex relates to expenditure on property assets to accommodate staff and other resources. This includes offices, operational depots and storage facilities.
364. Planning and execution of this investment has already commenced and capex during the CPP period amounts to \$10 million.

The Verifier did not offer any views on Powerco's proposed customer connections, asset relocations and facilities capex

365. Under a CPP, the input methodologies allow the Verifier to nominate up to 20 projects or programs for detailed review.
366. More detail on the selection process adopted by the Verifier can be found on pages 126-131 of the Verification Report.
367. This resulted in a number of capex categories not being reviewed by the Verifier, and this included customer connections, asset relocations and facilities. We therefore undertook our own analysis of Powerco's proposals in these categories, and we discuss our decisions below.

Our draft decision for customer connections, asset relocations and facilities capex

368. In our draft decision, we proposed to accept the \$65 million Powerco has proposed in its CPP proposal.

¹¹⁵ Powerco's guidance that explains how it determines the level of contribution can be found at <http://www.powerco.co.nz/media/1389/electricity-capital-contribution-guide-vf.pdf>

Submissions on our draft decision

369. We did not receive any submissions on our draft decision for customer connections, asset relocations and facilities capex.

Our final decision for customer connections, asset relocations and facilities capex

370. As we received no submissions on our draft decision with respect to customer connections, asset relocations and facilities capex we have retained our draft decision.
371. As a result, we have accepted the \$65 million Powerco has proposed in its CPP proposal. Of the \$65 million we have accepted, \$51 million relates to customer connections, \$4 million is for asset relocations, and \$10 million is for facilities capex.

Customer connections

372. We agree with Powerco that much of the expenditure under this category is externally driven and is subject to uncertainty given the often short lead times for connections and the inherent difficulty this presents in providing accurate forecasts.
373. We agree with the approach Powerco has taken to forecast its customer connections and note that, because a significant proportion of these costs are likely to be recovered from the connecting customers, the impact on the maximum allowable revenue (**MAR**), and therefore customer impacts, is likely to be minimal.
374. Powerco will also be required to provide additional transparency regarding the level of capital contributions it receives compared to forecast in the CPP Annual Delivery Report discussed in Attachment K of this paper.
375. Due to the likely minimal impact on customers during the CPP period, we have applied proportionate scrutiny in only undertaking a limited review of Powerco's customer connections forecast.

Asset relocations

376. Given the relatively small amounts of capex associated with this category, coupled with the fact that Powerco proposes a decrease in the CPP period when compared to historical expenditure, we have only undertaken a limited review of Powerco's forecast.
377. From our review, we have concluded Powerco's proposals are appropriate. We have therefore included \$4 million in the capex allowance over the CPP period.

Facilities

378. We undertook a review of Powerco's proposed facilities capex over the CPP period. Despite the comparatively small amounts of capex associated with this category of expenditure, we considered further review was necessary to satisfy ourselves that the proposed increase in historical expenditure was justified and met the expenditure objective.
379. We also visited some of Powerco's planned new facilities as part of our technical visits to Taranaki, and we noted that work was already well underway in constructing a new control centre in New Plymouth.
380. It is clear to us that Powerco employees will require new facilities given the significant increase in staff and workloads proposed for the CPP period.
381. As a result of our further review, we are satisfied that the proposed facilities capex is justified, and meets the expenditure objective. We have therefore included \$10 million in the capex allowance over the CPP period.

Attachment G Allowance for opex

Purpose of this attachment

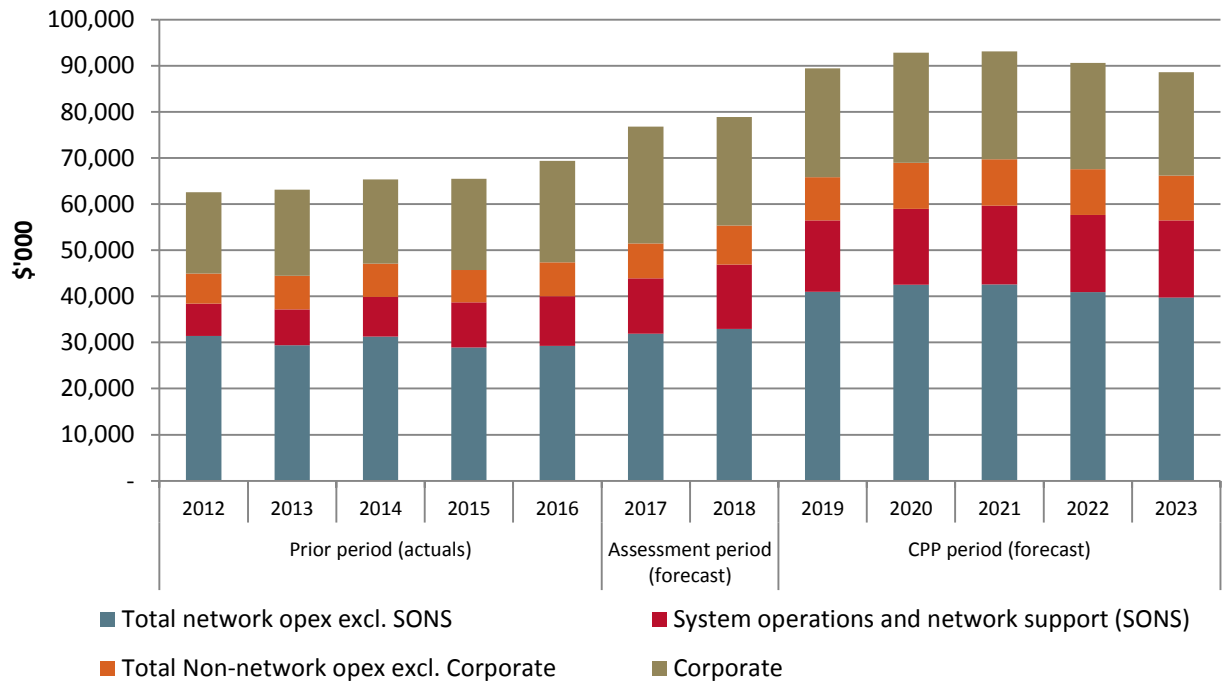
382. This attachment outlines our final decisions on the opex that Powerco will be able to recover from its customers in the CPP period.

Summary of our final decision for opex

383. We have accepted \$447 million of the \$455 million Powerco proposed for opex as satisfying the expenditure objective. We note this is unchanged from what we proposed in our draft decision as the submissions we received on our draft decision for opex did not change our view.
384. As we explain in more detail in Attachment D, in response to submissions on our draft decision for network evolution capex, we have included in the opex allowance an additional amount of \$1.5 million for Powerco to spend on network evolution initiatives during the CPP period. For clarification, we note that Powerco had not included such an amount in its CPP proposal.
385. We have rejected \$9 million of opex as we are not satisfied that these expenditures meet the expenditure objective.
386. We note that by accepting \$447 million of opex, Powerco will be able to recover these costs entirely from the users of its electricity distribution network in the CPP period. Under the incremental rolling incentive scheme (IRIS), Powerco will have to share with its customers any actual over- or under-spends during the subsequent pricing period.
387. We acknowledge our final decision means Powerco will be able to recover almost its entire proposed spend for opex. However, as discussed in Attachment K, we decided that Powerco should provide more transparency about how it is delivering the proposed programme of works and levels of expenditure during the CPP period. We consider Powerco will achieve this by publishing a CPP Annual Delivery Report. How Powerco performs in delivering the outputs associated with these proposed opex allowances will be monitored in that report.

Powerco's proposed opex

388. Powerco has proposed to recover \$455 million of opex over the CPP period, an increase of \$99 million (28%) on the five years leading up to the CPP period. Of the total opex proposed, \$289 million relates to network activities such as preventative, reactive and corrective maintenance, vegetation management and systems operations and network support (SONS). A further \$165 million relates to non-network activities including corporate, ICT and facilities opex. An overview of Powerco's opex forecast over the CPP period can be seen in Figure G1 below.

Figure G1 Powerco's historical and forecast opex

389. Powerco suggested that its current expenditure under the DPP have led to a backlog of maintenance and vegetation work, and it is experiencing an increasing number of asset failures and network faults. The proposed increase in opex over the CPP period is driven by Powerco's desire to correct the backlog of maintenance defects it has accrued, improve asset inspection and assessment practices, support its increased capex programme and transition to a more proactive vegetation management approach.
390. We provided a brief summary of the activities under network and non-network opex that Powerco had included in its opex forecast in our draft decision paper. Powerco provided a more detailed outline of its opex proposal in its CPP Main Proposal, Chapters 14 and 15, that is available on our website.¹¹⁶

¹¹⁶ Powerco's proposal and supporting documents can be downloaded at the following link: <http://www.comcom.govt.nz/regulated-industries/electricity/cpp/cpp-proposals-and-decisions/powercocpp/powerco-customised-price-quality-path-proposal/>

The Verifier's views on opex

391. The Verifier reviewed five of the opex programmes Powerco included in its CPP proposal, namely preventative and corrective maintenance, SONS, vegetation management and corporate support. The Verifier concluded that most of Powerco's opex forecast did not appear inconsistent with the expenditure objective.¹¹⁷ In particular, the Verifier considered that:
- 391.1 using historical costs that included all efficient opex that a prudent EDB would incur as a base when determining forecast opex was a valid and reasonable method; and
 - 391.2 some of the maintenance and SONS step changes proposed by Powerco were prudent.
392. However, the Verifier considered that some of the step changes in opex relating to uplifts in FTEs in the SONS and corporate portfolio did not fully meet the expenditure objective. The Verifier explained that "these issues are likely to result in an overstatement of expenditure, up to approximately \$27.3 million (\$2016) over the CPP period, or approximately 6% of Powerco's forecast opex".¹¹⁸
393. When we subsequently met with the Verifier, we clarified that the Verifier did not categorically consider that this opex did not meet the expenditure objective. Rather the Verifier had not seen sufficient justification underpinning all of this opex.
394. We provided a more comprehensive summary of the Verifier's findings in our draft decisions paper.

Our draft decision for opex

395. Our draft decision was to accept \$446 million of the \$455 million Powerco sought in its CPP proposal. We proposed to reject \$9 million of opex which we were not satisfied met the expenditure objective.
396. In coming to this view, we took the following approach:
- 396.1 We reviewed Powerco's proposal and the report by the Verifier to identify the key issues for us to consider.
 - 396.2 We assessed the extent to which we could rely on the analysis and conclusions of the Verifier. This included a lengthy workshop with the Verifier to probe its approach and conclusions, and discuss the issues identified by the Verifier and ourselves.

¹¹⁷ Farrier Swier "Final Verification Report for Powerco" (7 June 2017), page 65.

¹¹⁸ Farrier Swier "Final Verification Report for Powerco" (7 June 2017), pages 65-66.

- 396.3 We published our Issues Paper and provided an opportunity for interested persons to express their views on Powerco's proposed opex and the Verifier's conclusions.
- 396.4 In respect of issues that were outstanding, we followed up with additional questions to Powerco and also met with Powerco staff at various occasions. In these questions and discussions, we particularly focussed on understanding Powerco's justification for opex step changes in the SONS and corporate portfolio driven by uplifts in FTEs.
- 396.5 We then formed a view as to the appropriate levels of opex allowances to be included in Powerco's proposed price path. Our decisions on these recommendations were reflected in the draft decision.
397. Based on the approach outlined above, we considered that most of Powerco's opex forecast was reasonable and met the expenditure objective. This was because it reflected the efficient costs that a prudent EDB would require to deliver Powerco's proposed work programme during the CPP period. Where we considered this not to be the case, or where we had not seen sufficient evidence suggesting the proposed expenditure met the expenditure objective, our draft decision provided for a lower opex than Powerco sought.
398. In assessing Powerco's opex forecasts, we took a similar approach as the Verifier by focussing our efforts on the five highest value opex programmes. This included opex relating to preventative and corrective maintenance, SONS, vegetation management and corporate support.
399. Consistent with our approach to reviewing Powerco's capex proposals, we focussed our efforts on areas the Verifier concluded did not fully meet the expenditure objective. However, in addition to the review the Verifier had undertaken, we also undertook a high level review of the outstanding four minor programmes – comprising reactive maintenance, ICT, insurance and facilities.
400. How our draft decision related to the various opex programmes is outlined in Table G1 below.

Table G1 Opex during CPP period

Programmes	Proposed	Unverified	Draft decision	% difference
Preventative Maintenance	\$59m	\$0m	\$59m	0%
Corrective Maintenance	\$66m	\$0m	\$66m	0%
SONS	\$82m	Up to \$9m	\$74m	-11%
Vegetation Management	\$46m	\$0m	\$46m	0%
Corporate	\$116m	Up to \$18m	\$116m	0%
Reactive Maintenance	\$37m	\$0m	\$37m	0%
ICT	\$28m	\$0m	\$28m	0%
Insurance and governance	\$11m	\$0m	\$11m	0%
Facilities	\$10m	\$0m	\$10m	0%
TOTAL	\$455m	Up to \$27m	\$446m	-2%

Submissions on our draft decision

401. Only Fonterra submitted on our opex draft decision. Powerco and MEUG later commented in their cross-submissions on the issue raised by Fonterra.
402. Fonterra submitted on the absence of any proposed opex reduction initiatives. In particular, Fonterra did not consider the proposed increase in reactive maintenance appropriate. In that regard, Fonterra submitted:¹¹⁹

The 7% increase in reactive maintenance as oppose to a reduction over the CPP period is a disappointment as it would be prudently expected that the significant increase in new equipment capex as well as a 33% increase in preventative and corrective maintenance would deliver at worst the same annual spend if not better performance.

In paragraph 445 [of the draft decision paper] it is noted that reactive maintenance will reduce resulting in a cost reduction across future pricing periods, but our view is that those savings should be reflected in the CPP determination.

403. MEUG considered this a “common-sense question” and submitted we should:

Reconsider the draft given the material, that is 7% increase, proposed for reactive maintenance.¹²⁰

¹¹⁹ Fonterra “Powerco’s proposal to Customise its Prices and Quality Path Standards Draft Decision”, 14 December 2017, paras 2.2 & 2.3.

404. As Powerco outlined in its cross-submission to Fonterra’s submission, it:

Expects reactive Opex to remain generally flat and in-line with historical levels and reiterated that it set “the base forecast level at recent historical levels.”¹²¹

405. As suggested by Fonterra and MEUG, Powerco also expects reactive opex to decrease longer term, which is implemented in its CPP proposal through a top down efficiency adjustment applied to year four and five of the CPP period.

406. During the CPP period, however, Powerco explains the efficiency achievements will be offset by some small step changes in reactive maintenance opex as:

406.1 Powerco has allowed in its CPP proposal for a small number of additional standby fault personnel to assist in managing the increasing number of faults being experienced on the network, to manage increasing fault restoration times; and

406.2 Powerco’s network also continues to experience growth, requiring additional assets and translating into additional network length and ICPs.

407. Fonterra also submitted on the backlog of preventative and corrective maintenance that has arisen and which is the main driver for increased preventative and corrective maintenance opex during the CPP period. Fonterra commented that:

No detailed analysis of why this backlog occurred other than Powerco’s spend limitations, and there is no discussion or quality metric to ensure this backlog does not occur again.¹²²

Our final decision

408. In coming to our final decision on the allowance for opex, we reviewed all submissions and cross-submissions on our draft decision. Having regard to these, we retain our draft decision to accept \$446 million of the \$455 million Powerco sought in its CPP proposal.

409. In response to submissions on our draft decision for network evolution capex, we have however included an additional amount of \$1.5 million in the opex allowance that was not already provided for in our draft decision. As we explain in more detail in Attachment D, this should give Powerco some headroom to fund some smaller network evolution initiatives during the CPP period. For clarification, we note that Powerco had not included such an amount in its CPP proposal.

¹²⁰ MEUG “Powerco CPP draft decision – cross submission”, 19 January 2018, para 25.

¹²¹ Powerco “The Commerce Commission ‘Powerco Customised Price-quality Path Draft Decision’ – Cross-submission”, 19 January 2018, Chapter E.

¹²² Fonterra “Powerco’s proposal to Customise its Prices and Quality Path Standards Draft Decision”, 14 December 2017, para 2.4.

410. Having considered the issue of Powerco's proposed increase in reactive maintenance again, we are satisfied it meets the expenditure objective. We provide our reasons for our final decision, including our response to submissions raised on the draft allowance for reactive maintenance opex, in the remainder of this attachment.

Preventative and corrective maintenance opex

411. Our final decision is:

411.1 To accept Powerco's proposed spend of \$59 million on preventative maintenance over the CPP period, an increase of \$20 million (54%) compared to the five years leading up to the CPP period; and

411.2 To accept Powerco's proposed spend of \$66 million on corrective maintenance over the CPP period, an increase of \$11 million (19%) compared to the five years leading up to the CPP period.

412. Powerco has built up a significant backlog of preventative and corrective maintenance issues. These are at unacceptably high levels and need to be remedied in the CPP period.
413. In response to Fonterra's concern that such a backlog may occur again in the future, and the subsequent discussions we had with Powerco, we consider that Powerco's revised asset management approach (i.e, its move from a reactive to a more proactive maintenance approach) as well as its significant asset renewals programme will likely prevent it from building up such a backlog again.
414. As explained in Attachment. K, Powerco will be required to provide a CPP Annual Delivery Report and engage with its stakeholders, including us, in order to make transparent how it tracks against the final CPP decision. We would expect any deviations from Powerco's plans that may result in the backlog of issues not being reduced or even being increased further to be detected and resolved. In subsequent pricing periods, we acknowledge there is no quality metric in place, as pointed out by Fonterra, that can ensure that such a backlog will not ever occur again.
415. As explained in this paper, we expect reliability of Powerco's electricity network to improve. We would take appropriate action if that did not happen. As part of a quality breach investigation, we would aim to identify the causes of such non-compliance, including any backlogs in maintenance work.
416. We consider the proposed expenditure meets the expenditure objective because:
- 416.1 It is reflective of efficient business as usual expenditure levels when compared to other EDBs in New Zealand; and
- 416.2 The proposed step changes from historical spend are prudent as they will enable Powerco to move from a maintenance approach that is largely reactive to being more proactive.
417. Over the long term, we consider this is likely to result in overall cost savings across the maintenance portfolio. Although any net benefits are unlikely to occur in the

short term, Powerco has made a general efficiency adjustment in the CPP period across the other maintenance programmes.

SONS opex

418. Our final decision is to accept \$74 million of Powerco's proposed spend of \$83 million on preventative maintenance over the CPP period. This is an increase of \$19 million (34%) compared to the five years leading up to the CPP period. Powerco explained the step change in SONS opex is largely required to allow for additional FTEs that are necessary to increase capability and skills to achieve asset management improvements (strategy driven FTE increases) and to deliver increased work volumes (volume driven FTE increases).
419. Having undertaken our own review and analysis, we agree with the Verifier's view that the majority of Powerco's proposed SONS opex is appropriate because:
- 419.1 Business as usual activities are reasonable, as they reflect what Powerco used to spend historically;
- 419.2 Non FTE-driven strategy step changes (eg, Data quality and asset management improvements, ISO 55000 certification) are appropriate steps to undertake; and
- 419.3 The establishment of an in-house call centre, despite not being underpinned by a cost-benefit analysis, is justifiable given there is consumer support including willingness to pay for it.
420. The strategy driven FTE increases cover four areas including future networks, network analytics, investment optimisation and operations capability. The Verifier concluded, and we agree, that the \$4 million relating to increase in operations capability is justified as it is related to managing the day-to-day operations of the electricity network, especially in the face of increasingly more instances that result in network outages and switching.
421. With regards to the remaining \$9 million of strategy driven step changes (i.e, future networks, network analytics and investment optimisation), the Verifier concluded that Powerco did not provide sufficient quantification and certainty that the proposed benefits outweigh the associated costs.
422. In response to the Verifier's finding, Powerco explained that the uplift in FTEs will result in delivering future efficiencies. In particular, Powerco explained that:¹²³
- Achieving these efficiencies is not costless. Without the planned improvements in our asset management capability, our ability to expand our focus beyond current business practices will be seriously compromised, and the scope for efficiencies will be lower than reflected in our CPP forecast.

¹²³ Powerco "Customised Price-Quality Path – Main Proposal" (12 June 2017), page 56.

423. We agree that delivering future efficiencies will be in the long-term benefit of the consumer. We are confident that under our final decision, Powerco will still be able to deliver these efficiencies. This is because:
- 423.1 Our opex allowance covers 98% of Powerco's proposed expenditure which gives Powerco sufficient headroom to recruit new staff and deliver its work programme; and
 - 423.2 Powerco demonstrated through the work it had undertaken in preparing the CPP proposal, that it has sufficient network analytics and investment optimisation capability in-house already and that only moderate additional funding above the business as usual levels seems necessary to account for the loss in capability as some staff with fixed-term contracts have left or will be leaving Powerco shortly.
424. Consistent with our reasoning above, we have not seen any additional evidence justifying these step changes, and therefore we have excluded \$9 million from Powerco's SONS opex allowance. Despite our views about Powerco's ability to deliver future efficiencies, we do not consider these costs to be unreasonable but, in order to provide an allowance for these in the CPP, Powerco would have needed to provide more evidence as to how they meet the expenditure objective. For example, this could have included information on:
- 424.1 How the quantum of 18 additional FTEs has been determined in order to increase capability and skills;
 - 424.2 How these FTEs link to the additional expenditure proposed in the areas of future networks, network analytics, investment optimisation and operations capability;
 - 424.3 How the future efficiencies Powerco is aiming to achieve link to this uplift in FTEs;
 - 424.4 How customers are likely to benefit from this increase in expenditure (in addition to the above mentioned efficiencies); and
 - 424.5 Whether there are any consequences to the network.

Vegetation management opex

425. Our final decision is to accept Powerco's proposed spend of \$46 million on vegetation management over the CPP period, an increase of \$19 million (70%) compared to the five years leading up to the CPP period.
426. When we met with Powerco, we discussed in detail the proposed changes to its approach to vegetation management with a view to understand the significant uplift of 70% in this area. During various site visits, we inspected the extent to which vegetation has become a problem to Powerco's network.

427. It is apparent to us that the backlog of outstanding vegetation management work needs some immediate action in order to reduce these unacceptable levels and that a change to Powerco's approach is required to sustain these in the longer term.
428. We therefore consider the proposed spend meets the expenditure objective because it is aimed at:
- 428.1 Reducing the rise in the related fault trend;
 - 428.2 Undertaking higher work volumes to establish a sustainable vegetation management regime; and
 - 428.3 Transitioning to a more cost intensive three-year cutting cycle which is consistent with good industry practice and is appropriate to meet regulatory requirements.
429. We note the Verifier also concluded that appropriate modelling had been undertaken to determine forecast expenditures, but that there are some limitations around uncertain work volumes and unit cost economies of scale. We acknowledge these uncertainties and the effect they can have on the expenditure allowances but did not make any changes to Powerco's forecasts.
430. This is because we have undertaken a review of Powerco's forecast volumes and consider these to be reasonable. We also note the unit rates Powerco used to determine vegetation management opex are at the higher end of what we consider appropriate. However, we have accepted them as they do not appear unrealistic from the further analysis we have undertaken.

Corporate opex

431. Our final decision is to accept Powerco's proposed spend of \$116 million on corporate opex over the CPP period, an increase of \$7 million (7%) compared to the five years leading up to the CPP period. Historical costs, however, include some non-recurrent expenditure such as the cost of preparing for the CPP application. Once these have been netted off, the step change from historical costs is \$19 million (19%) over the CPP period.
432. The main drivers of this step change are an increased number of FTEs and, to a lesser extent, the need for more professional advice aimed at growing capability to meet expanding activity levels, and providing business support for networks that are growing.

433. The Verifier concluded that the corporate opex covering business as usual activities appear efficient when benchmarked against other EDBs and that some step up is reasonable to align with the increase in capital and operating activity. However, the Verifier considered Powerco provided insufficient evidence justifying the total increase in FTEs and recommended we should focus our analysis on that particular question.
434. Powerco disagreed with the Verifier's view. In particular, Powerco explained that:¹²⁴
- In our view we provided sufficient information. We provided the justification for all FTE increases, based on an assessment of the increase in activity for each area, and using the judgement and expertise of each business unit manager to determine the most efficient method to deliver the result (eg, balancing internal versus external resourcing). Each FTE was costed using the job description to be filled and our remuneration policy.
435. We reviewed the information Powerco had provided and met subsequently with Powerco various times to discuss this aspect of its CPP proposal. It is apparent to us that the delivery of the CPP work programme requires additional corporate support. The uplift in corporate FTEs seems moderate compared to the uplift in activities. This is also underpinned by the fact that 10 of the additional 21 FTEs will be employed in the ICT department which will be responsible for the roll-out of the new ERP system. We expect to see a decrease in ICT related FTEs in subsequent pricing periods when the implementation of the ERP system has been completed.
436. We note that we have also reviewed the proposed salaries of Powerco employees which we consider to be reasonable.

Reactive maintenance opex

437. Our final decision is to accept Powerco's proposed spend of \$37 million on reactive maintenance over the CPP period, an increase of \$2 million (7%) compared to the five years leading up to the CPP period.
438. We consider the proposed spend meets the expenditure objective because it reflects what Powerco has spent on reactive maintenance in previous periods and includes some minor additional step changes that we consider are reasonable (and which are driving the 7% increase in reactive maintenance opex).
439. We agree with Fonterra's and MEUG's view that an increase in reactive maintenance seems counter-intuitive given Powerco's plan to move from a largely reactive to a more proactive maintenance approach. However, we consider reactive maintenance costs to be likely to decrease significantly from current levels in subsequent pricing periods as opposed to this CPP period. Powerco indicated this in its proposal by including some small efficiency improvements in the reactive maintenance opex in year four and five of the CPP period.

¹²⁴ Powerco "Customised Price-Quality Path – Main Proposal" (12 June 2017), page 56.

440. As indicated above, we consider the rather small step change of \$2 million across the CPP period reasonable, as it is driven by:

440.1 a temporary spike in personnel to reduce the backlog in maintenance issues;
and

440.2 a growing network that requires increased maintenance opex going forward.

441. We would, however, still expect these to be offset by efficiency improvements in subsequent pricing periods.

ICT opex

442. Our final decision is to accept Powerco's proposed spend of \$28 million on ICT opex over the CPP period, an increase of \$10 million (55%) compared to the five years leading up to the CPP period.

443. We consider the proposed step change in ICT opex meets the expenditure objective because it is aimed at supporting the roll-out of the new ERP system. As outlined in Attachment. E, we support the capex Powerco included in the CPP proposal relating to the ERP system, as this will support Powerco's shift to simplified data transition and integration with a view to enhance future decision making.

444. We expect ICT opex to fall back to historical levels in subsequent pricing periods when the new ERP system has been implemented and any legacy systems have been disestablished (i.e, when any ICT opex covering licence cost for legacy systems are not required any further).

Attachment H Quality standards applying to Powerco

Purpose of this chapter

445. This chapter describes our decisions on the quality standards that will apply to Powerco during the CPP period. We also set out our decisions on the revenue-linked quality incentive scheme.

Summary of our decision on quality standards and revenue-linked incentive scheme

446. We have set separate quality standards for planned interruptions and unplanned interruptions during the CPP period.

447. We have also set a revenue-linked quality incentive mechanism applying to the quality path for unplanned interruptions.

448. Planned quality standards will differ from the draft decision in two ways:

448.1 We have added a threshold above the Powerco forecast equivalent to one standard deviation; and

448.2 We have included an additional compliance measure relating to the aggregate of planned outages over the CPP period.

449. Unplanned quality standards are unchanged from the draft decision.

What Powerco proposed

Planned interruptions

450. In its CPP application, Powerco proposed that “planned outages should be removed from compliance as the current historical-based approach would prevent the efficient delivery of the CPP programme.”¹²⁵

Unplanned interruptions

451. Powerco proposed applying the DPP approach to unplanned interruptions. Under Powerco’s proposal, the quality standard for the CPP would be set using the historical average of unplanned SAIDI and SAIFI over the 10-year period to 31 March 2017. The ‘cap and collar’ calculations for the revenue-linked incentive mechanism would also be based on this period.

¹²⁵ Powerco “Customised Price-Quality Path - Main Proposal” (12 June 2017), page 219.

Table H1 Powerco’s proposed quality standard parameters for unplanned SAIDI and SAIFI

	SAIDI	SAIFI
Cap/Limit	195.9	2.31
Target	173.3	2.14
Collar	150.6	1.97

Our draft decision on quality standards

What quality measures should be included in the CPP

452. In response to the Process and Issues paper Powerco stated that it was difficult to incorporate other measures, beyond SAIDI and SAIFI, into a quality path, “as any new measures either risk introducing unintended incentives, require robust, audited data to set an appropriate standard, or have no useful precedent (particularly non-technical issues).”¹²⁶ Powerco had also noted that it intended to work with the Commission “to agree a suite of “customer service” reporting metrics (outside of the formal quality path) with the aim of providing transparency of our annual performance in this important area.”¹²⁷
453. We also noted support from other parties on the use of other measures to track Powerco’s performance in delivering its planned CPP work programme, although several had suggested that a reporting obligation may not provide a sufficient incentive for Powerco.¹²⁸ A number of submissions had also emphasised the importance of Powerco communicating timely information around both planned and unplanned interruptions, including, in the case of planned interruptions, sufficient advanced notification of the outage.¹²⁹
454. Our draft decision set out our views on the importance of monitoring Powerco’s delivery of the CPP work programme.¹³⁰ We proposed an annual delivery report

¹²⁶ Powerco "Submission on Powerco CPP Issues paper" (22 September 2017), paragraph 34.

¹²⁷ Powerco "Submission on Powerco CPP Issues paper" (22 September 2017), paragraph 32.

¹²⁸ see for example TDB Advisory on behalf of ERANZ "Submission on Powerco CPP Issues paper" (22 September 2017), paragraph 3.39; MEUG "Submission on Powerco CPP Issues paper" (22 September 2017), paragraphs 2.7-2.8; Fonterra "Submission on Powerco CPP Issues paper" (22 September 2017), paragraph 1.9.

¹²⁹ Trustpower "Submission on Powerco CPP Issues paper" (22 September 2017), section 3.4; Fonterra "Submission on Powerco CPP Issues paper" (22 September 2017), paragraph 1.5.

¹³⁰ Commerce Commission “Draft decision for setting Powerco’s customised price quality path” (16 November 2017), Attachment K.

designed to track Powerco's progress during the CPP period towards its planned CPP work programme. The reporting framework would also monitor Powerco's performance against key customer service metrics in relation to planned and unplanned interruptions.

455. In the draft, we referred to the customer feedback received by Powerco on quality. Powerco had stated:¹³¹

our customers advise us that they do not expect improved reliability where this comes at a cost (other than in poor performing pockets of the network). However, they would not accept deteriorating performance. Our proposed CPP investments reflect this, by seeking to arrest deteriorating asset performance and stabilise network SAIDI and SAIFI at present levels.

456. Powerco's consultation as part of preparing its CPP proposal indicated that service quality matters greatly to customers, and that deteriorating service levels would not be acceptable. Powerco had noted that during its core consultation on its preliminary CPP proposal in early 2017, its customers said that current reliability should be maintained or improved.¹³²

457. We also noted that in order to maintain or improve reliability, it may be necessary to increase the level of planned interruptions to allow maintenance and construction work to be undertaken. This creates a trade-off between planned and unplanned interruptions. Powerco noted that its business customers in particular, and to a lesser extent its residential customers, are prepared to accept a higher level of planned outages in return for reduced levels of unplanned outages. "Business customers are happy to trade reduced unplanned outages for more planned outages, while residential customers place a lower value on this trade-off but it is still evident."¹³³

458. According to Powerco's consultation, 87% of business customers and 81% of residential customers agree/strongly agree with the statement that unplanned power cuts are worse than planned power cuts.¹³⁴ In addition, customers are typically notified in advance of planned outages, which reduces the inconvenience of planned interruptions compared to unplanned interruptions.

Our draft decision on planned interruptions

459. Our draft decision was to include a quality standard for planned interruptions, based on Powerco's forecast of planned SAIDI and SAIFI during the CPP period.

¹³¹ Powerco "Customised Price-Quality Path - Main Proposal" (12 June 2017), page 208.

¹³² Powerco "Customised Price-Quality Path - Main Proposal" (12 June 2017), page 46.

¹³³ Powerco "Customised Price-Quality Path - Main Proposal" (12 June 2017), page 47.

¹³⁴ Powerco, "Full results from consumer survey: Survey results for Powerco", PwC report, page 39.

460. Our main concern with Powerco’s proposal to exclude planned interruptions from the quality standard was that it would weaken incentives to undertake the CPP work efficiently and to minimise disruptions to customers. Similar concerns were raised by a number of parties in their submissions on the Issues Paper.
461. In summary, we proposed to set a quality standard for planned interruptions based on Powerco’s forecast of planned SAIDI and SAIFI. This took into account the level of forecasted planned interruptions required for Powerco to undertake the CPP work programme. It also retained an incentive for Powerco to undertake the CPP work efficiently, in line with our CPP decision.
462. The below table summarises the quality standard that we proposed in the draft for planned interruptions during the CPP period.

**Table H2 Proposed Quality Standard for Planned Interruptions
(draft decision)**

	2019	2020	2021	2022	2023
Planned SAIDI (minutes)	71.034	75.446	82.017	87.213	88.190
Planned SAIFI (outages)	0.314	0.338	0.359	0.378	0.378

Source: Powerco “Planned SAIDI_SAIFI forecast – final_020617”.xls (Ansarada 10.21)

Our draft decision on unplanned interruptions

463. For unplanned interruptions, we proposed that the quality standard at the start of the CPP period should be based on the 10-year average of unplanned interruptions, and that this should gradually reduce over the CPP period (corresponding to an improvement in quality). This reduction reflects the expected improvement in reliability which is a result of the increased investment during the CPP period.
464. We considered in the draft that it was reasonable that the quality standard for unplanned interruptions was initially set on the basis of the historical average of unplanned SAIDI and SAIFI, following the approach taken in the 2014 EDB DPP. However, we considered that the quality standard should also reflect the expected improvement in network reliability as a result of the increase in investment during the CPP period. To allow for this, we proposed to gradually reduce the unplanned SAIDI and SAIFI levels (i.e. improve reliability) over the course of the CPP period. We considered that such an adjustment was warranted, given the preference of Powerco’s customers that current reliability should be maintained or improved.¹³⁵
465. A number of submissions on the Issues Paper supported an adjustment to Powerco’s proposed quality targets for unplanned outages to better reflect the expected

¹³⁵ Powerco “Customised Price-Quality Path - Main Proposal” (12 June 2017), page 46.

improvement in network reliability. For example, Orion submitted that targeted improvements in reliability are achievable, though external environmental conditions have the greatest impact on unplanned outages. Trustpower also expected Powerco's performance on unplanned outages to improve over time as investment in the network occurs.

466. In summary, we proposed to set a quality standard for unplanned outages based on a historical average of unplanned SAIDI and SAIFI, and with gradual reductions over the course of the CPP period. In considering an appropriate reduction in unplanned SAIDI and SAIFI for the purposes of the quality standard, we had regard to the following:
 - 466.1 the nature and magnitude of increased expenditure proposed by Powerco and approved in the draft decision;
 - 466.2 the impact of Powerco's recent investment in its reliability programme, for example in terms of reducing the average number of customers affected per fault, and in terms of the relative performance of Powerco's eastern and western networks;
 - 466.3 the expected impact of Powerco's expenditure on the key contributors to unplanned SAIDI and SAIFI;
 - 466.4 Powerco's forecasts of unplanned SAIDI and SAIFI over the CPP period, as well as the Verifier's comments on Powerco's forecasts;
 - 466.5 the differing impact of Powerco's CPP programmes on unplanned SAIDI and SAIFI, with a number of programmes likely to have a greater effect on the duration of unplanned outages than the frequency.
467. As a result, we proposed that by the end of the CPP period, the unplanned SAIFI limit would be 5% below the limit at the start of the CPP period, and the unplanned SAIDI limit would be 10% below the limit at the start of the CPP period.
468. The table below summarises the quality standard that we proposed in the draft for unplanned outages during the CPP period.

Table H3 Proposed Quality Standard for Unplanned Outages (draft decision)

	Year ending 31 March					
	2018	2019	2020	2021	2022	2023
Unplanned SAIDI limit (minutes)	195.555	191.477	187.484	183.575	179.747	175.999
Unplanned SAIDI target (minutes)	173.204	169.592	166.056	162.594	159.203	155.884
Unplanned SAIFI limit (outages)	2.309	2.285	2.262	2.239	2.216	2.194
Unplanned SAIFI target (outages)	2.138	2.116	2.094	2.073	2.052	2.031

Note: the 2018 target figures are the 10-year historical averages, with the limits including 1 standard deviation. The 2018 figures represent the values at the start of the CPP period (i.e. 1 April 2018). By the end of the CPP period, the target and limit figures are 10% lower than at the start of the CPP period in the case of unplanned SAIDI, and 5% lower in the case of unplanned SAIFI.

469. Under the quality standard that we proposed in the draft for unplanned outages, Powerco would be deemed to be non-compliant if it exceeded the unplanned SAIDI or SAIFI limits in two-out-of-three consecutive years. This would provide some flexibility to allow for one-off poor performing years. The proposed quality limits were set at one standard deviation above the historical average.

Submissions on our draft decision - Planned interruptions

470. Powerco's view remains that planned outages should be excluded from the quality standard and revenue incentive scheme, as this removes any incentive for them to limit planned (and necessary) work in order to avoid exceeding the quality cap or pursue a revenue bonus in any particular year. However, Powerco submitted that if planned outages were to be included in the quality standard,¹³⁶

... the quality standard should be set at a threshold above Powerco's forecasts. Powerco's quality model derives an expected (P50) outturn for unplanned SAIDI/SAIFI. While this is appropriate for tracking expected planned quality outcomes, if it to be applied to the quality standard, then to be consistent with the current DPP framework, a margin (equivalent to 1 standard deviation) should be added.

471. Grey power and Molly Melhuish submitted in support of the inclusion of planned interruptions in the quality standard.¹³⁷¹³⁸

¹³⁶ Powerco "Submission on Powerco CPP Draft decision" (15 December 2017), page 3.

¹³⁷ Grey Power "Grey Power Submission on Powerco CPP draft decision" (15 December 2017), page 1.

¹³⁸ Molly Mehuish "Molly Mehuish Submission on Powerco CPP Draft Decision" (15 December 2017), page 1.

472. Fonterra believe that there is a quality metric missing around planned outages that does not pick up the frequency of planned outages to the same end customers. For dairy farmers, multiple planned outages will be more inconvenient than a single planned outage. The frequency of planned outages on the same network quality metric will ensure Powerco plans their outages to ensure all necessary work is completed in the lowest number of outages on the same network.

Unplanned interruptions

473. In regards to unplanned outages Powerco proposed retaining an improvement target but only on the revenue-linked quality incentive scheme. For revenue at risk the reduction targets would be decreased from 5 and 10% across years 1-5 of the CPP to 2.5 and 5% across years 3-5 only.
474. For compliance, Powerco submitted that unplanned SAIDI and SAIFI remain at ten year historic levels. Powerco believe a quality path incentive can be achieved whilst at the same time recognising that their uplift in network expenditure is likely to have some positive impact on the level of unplanned interruptions by the later stages of the CPP period.
475. In line with previous submissions Aurora suggested there could be middle-ground options that dealt with both the Commission and Powerco's concerns. Aurora also requested in their submission the models supporting the Commissions proposed improvement in quality standards for unplanned outages. These were

An average service quality requirement: Measuring service quality performance over the entirety of the CPP period (rather than year on year); and/or

A service quality floor: Basing the minimum service quality requirement on Powerco's highest level of projected planned outages for the CPP period.

476. Fonterra supported the proposal in the draft decision to adjust the unplanned quality targets to reflect the expected improvement in network reliability.¹³⁹

Our final decision

Planned interruptions

477. Our final decision is to set a quality standard for planned outages based on Powerco's forecasts. Powerco must comply with the quality limit in two out of every three years.
478. In setting the quality limits in our final decision, we have included a margin above Powerco's forecasts, with the margin equivalent to one standard deviation.¹⁴⁰

¹³⁹ Fonterra "Fonterra Submission on Powerco CPP draft decision" (15 December 2017), page 3.

479. The reasons for adding a margin above Powerco's forecasts of planned interruptions are the following:
- 479.1 We acknowledge that Powerco's quality model, used by the Commission to calculate the planned quality limit, was built for forecasting expected planned quality outcomes. Such forecasts will be subject to some uncertainty, and the inclusion of a margin recognises this.
 - 479.2 We also consider that there is benefit in aligning the planned outages framework with that used in the DPP (the addition of the equivalent to one standard deviation above historic/forecast levels).
 - 479.3 We are conscious of setting the wrong incentives with planned outages and do not want to jeopardise the necessary investment set out in the CPP with a planned outage quality standard that is too stringent.
480. In addition, we are incorporating a requirement that Powerco's actual planned outages over the CPP period do not exceed a 5 year aggregate.
481. The reason for the five year aggregate quality measure is that under the two out of three year rule, Powerco could have a year of exceptionally high planned outages and yet avoid being in breach of quality standards. The five year aggregate quality measure will cap the extent to which this can occur. The five year aggregate is the sum of the SAIDI and SAIFI limits over the five years of the CPP.
482. We do not agree with Fonterra that another planned quality measure looking at outages to the same end customers is required. We believe there are a number of factors mitigating this risk of a single customer being subject to an extreme level of outages.
- 482.1 There is a natural financial incentive on Powerco to limit the number of planned outages it makes. Single, longer outages have a financial advantage over multiple short outages with a reduction in cost associated with planning, travel to site, any consent requirements etc.
 - 482.2 The planned SAIDI and SAIFI standards also provide incentive for Powerco to limit their planned outages as much as possible.

¹⁴⁰ A one standard deviation equivalent is calculated by taking a standard deviation of the historical (2008 – 2017) daily planned data and converting it to an annual standard deviation figure in the same way as is done for unplanned outages. This is then expressed as a percentage of the annual average planned SAIDI or SAIFI over the same period (2008 – 2017). The resulting standard deviations were 5.62 minutes for SAIDI and 0.019 outages for SAIFI, representing a margin of 12.6% for SAIDI and 9.4% for SAIFI.

482.3 We also acknowledge that Powerco does not measure outages at an ICP level, making this type of standard unrealistic. Powerco has committed to including a metric looking at worst performing feeders in its annual delivery report which will give some transparency on this issue.

482.4 The next EDB DPP reset provides the opportunity for a wider review of the current quality standards, and the use of more granular quality standards can be considered as part of that reset.

482.5 The table below summarises the quality standard that will apply to Powerco during the CPP period for planned SAIDI and SAIFI.

Table H4 CPP Quality Path Planned SAIDI and Planned SAIFI

	2019	2020	2021	2022	2023
Planned SAIDI Quality Limit (minutes)	79.976	84.944	92.342	98.192	99.292
Planned SAIFI Quality Limit (outages)	0.344	0.370	0.393	0.414	0.414

483. Powerco must also ensure that over the CPP period, the aggregate level of planned SAIDI must not exceed 454.746 minutes, and that the aggregate level of planned SAIFI must not exceed 1.935 outages.

Unplanned interruptions

484. Having reviewed submissions on the draft, our final decision is to maintain the quality standard for unplanned SAIDI and SAIFI based on historic averages with 5% and 10% reductions. The reasons for this are:

484.1 there was no new material evidence provided in submissions on the draft of more appropriate SAIDI/SAIFI levels. Powerco acknowledged that some improvement is expected in unplanned interruptions later in the regulatory period in its submission to the draft.¹⁴¹

484.2 Our own analyses and technical expertise, supported by the verifier report provide us with confidence that these targets are achievable and reflect the range of expenditure programmes within the CPP.

¹⁴¹ Powerco " Submission on Powerco CPP Draft decision" (15 December 2017), page 2.

485. As we outlined in our draft decision the 10% and 5% reductions in SAIDI and SAIFI have been developed using a combination of quantitative and qualitative information. It is not possible to calculate exact expected improvements from Powerco's proposal. The Verifier's report indicating an improvement expectation as well as our own internal analyses, as outlined in the draft has helped us develop and have confidence in these improvement targets.
486. In our view, it is therefore appropriate to start with the objective of maintaining current service quality, and to allow for some improvement as a consequence of the increased expenditure by Powerco over the CPP period. This also recognises the difficulty of attempting to fine-tune quality outcomes without compromising other objectives relating to safety and growth.
487. The table below summarises the quality standard that will apply to Powerco during the CPP period for planned SAIDI and SAIFI. Powerco would be deemed to be non-compliant if it exceeded the unplanned SAIDI or SAIFI quality limits in two-out-of-three consecutive years. The quality limit is set one standard deviation above the quality target which is utilised as part of the revenue-linked incentive mechanism.

Table H5 CPP Quality Path Unplanned SAIDI and Unplanned SAIFI

	2019	2020	2021	2022	2023
Unplanned SAIDI Quality Limit	191.414	187.422	183.514	179.688	175.941
Unplanned SAIDI Quality Target	169.529	165.994	162.533	159.144	155.826
Unplanned SAIFI Quality Limit	2.285	2.262	2.239	2.216	2.193
Unplanned SAIFI Quality Target	2.115	2.094	2.072	2.051	2.030

Revenue-linked quality incentive scheme

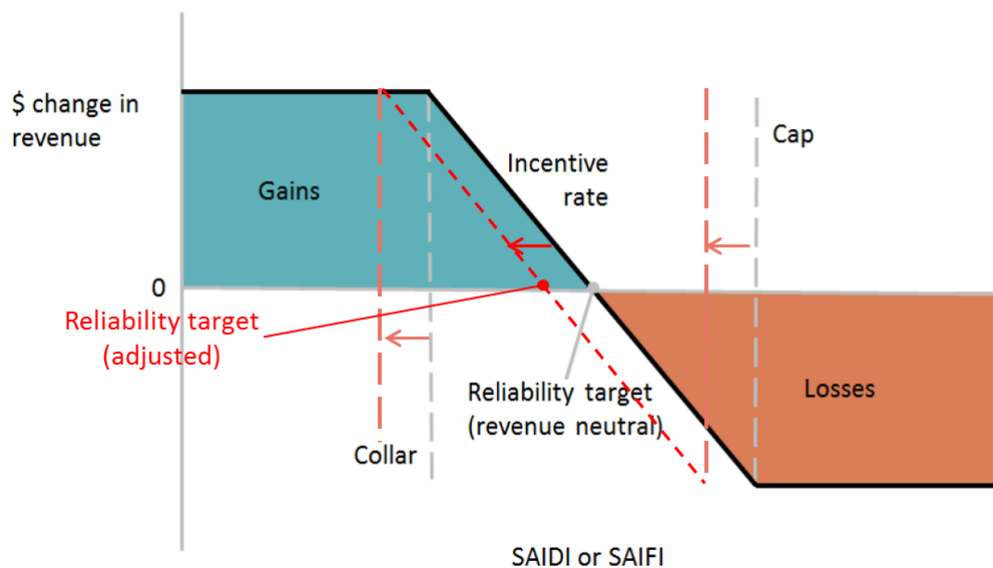
488. Our final decision is to apply the revenue-linked quality incentive scheme from the 2014 EDB DPP to unplanned interruptions during the CPP period. This will provide Powerco with an incentive to improve reliability where it is cost-effective to do so.

489. We have not applied the revenue-linked incentive scheme to planned interruptions. As Powerco has noted, including planned interruptions as part of the incentive scheme would incentivise Powerco to limit planned outages to gain additional revenue.¹⁴²

... there should be no opportunity to gain financially by reducing planned outages to less than the proposed quality path. That would effectively mean that customers would have to fund not only the additional CPP work, but also reward us for carrying out less work.

490. Under our final decision, Powerco's revenue allowance will allow it to undertake a programme of work that meets the expenditure objective. In our view, applying a revenue-linked quality incentive scheme to the planned interruptions required to undertake the CPP work programme would create a financial incentive to delay or otherwise reduce the CPP work programme. We have therefore excluded planned interruptions from the revenue-linked incentive scheme.
491. Figure H1 below is a stylised illustration of how the revenue-linked incentive scheme will operate in relation to unplanned interruptions.

Figure H2 Illustration of revenue-linked quality incentive scheme



492. Under the incentive scheme, Powerco's allowable revenue will decrease if it performs worse than the reliability target for unplanned interruptions, up to a maximum of 1% of its starting price maximum allowable revenue. This revenue decrease would be associated with a higher level of unplanned SAIDI or SAIFI, with the 1% maximum associated with a level known as the 'cap'. The maximum gain in allowable revenue from performing better than the reliability target will also be subject to a limit known as the SAIDI or SAIFI 'collar'.

¹⁴² Powerco "Customised Price-Quality Path – Main Proposal" (12 June 2017), page 218.

493. Following the approach taken in the 2014 EDB DPP, and as we proposed in the draft, we have set the cap and collar levels for unplanned SAIDI and SAIFI symmetrically at plus and minus one standard deviation around the reliability target. The reliability targets for unplanned interruptions are shown in Table H5. Under our final decision, the reliability targets, caps, and collars for unplanned interruptions all gradually reduce over the CPP period.
494. The parameters for the revenue-linked quality incentive scheme are summarised in Table H2 below for unplanned SAIDI, and Table H3 for unplanned SAIFI. The revenue at risk is based on 1% of the starting price maximum allowance revenue in this final decision, and is shared equally between unplanned SAIDI and unplanned SAIFI.¹⁴³ The incentive rates represent the change in revenue resulting from a unit change in reliability (unplanned SAIDI minute or unplanned SAIFI outage).

Table H6 Unplanned SAIDI

	<i>Year ending 31 March</i>				
	2019	2020	2021	2022	2023
Unplanned SAIDI Cap (minutes)	191.414	187.422	183.514	179.688	175.941
Unplanned SAIDI Target (minutes)	169.529	165.994	162.533	159.144	155.826
Unplanned SAIDI Collar (minutes)	147.645	144.566	141.552	138.600	135.710
Revenue at risk (\$000)	1,394	1,394	1,394	1,394	1,394
Incentive rate (\$/SAIDI minute)	63,715	65,072	66,458	67,873	69,319

¹⁴³ Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020 Main policy paper" (28 November 2014), para 6.19.

Table H7 Unplanned SAIFI

	<i>Year ending 31 March</i>				
	2019	2020	2021	2022	2023
Unplanned SAIFI Cap (outages)	2.285	2.262	2.239	2.216	2.193
Unplanned SAIFI Target (outages)	2.115	2.094	2.072	2.051	2.030
Unplanned SAIFI Collar (outages)	1.946	1.926	1.906	1.887	1.867
Revenue at risk (\$000)	1,394	1,394	1,394	1,394	1,394
Incentive rate (\$/SAIFI outage)	8,220,937	8,305,707	8,391,351	8,477,878	8,565,297

Attachment I The price path

Purpose of this attachment

495. This attachment outlines our decision on how we have set the price path under Powerco's CPP. It comprises:
- 495.1 a brief explanation of how we set the price path for a CPP;
 - 495.2 the MAR that Powerco will be able to recover each year from its customers;
 - 495.3 our views on how the short-term and long-term pricing impact of the draft decision on Powerco's proposal will be reflected in the price path;
 - 495.4 the recoverable costs and pass-through costs that Powerco will be able to recover/pass-through in addition to the MAR; and
 - 495.5 the retention rate for the incremental rolling incentive scheme (IRIS) that will apply to Powerco's capex.

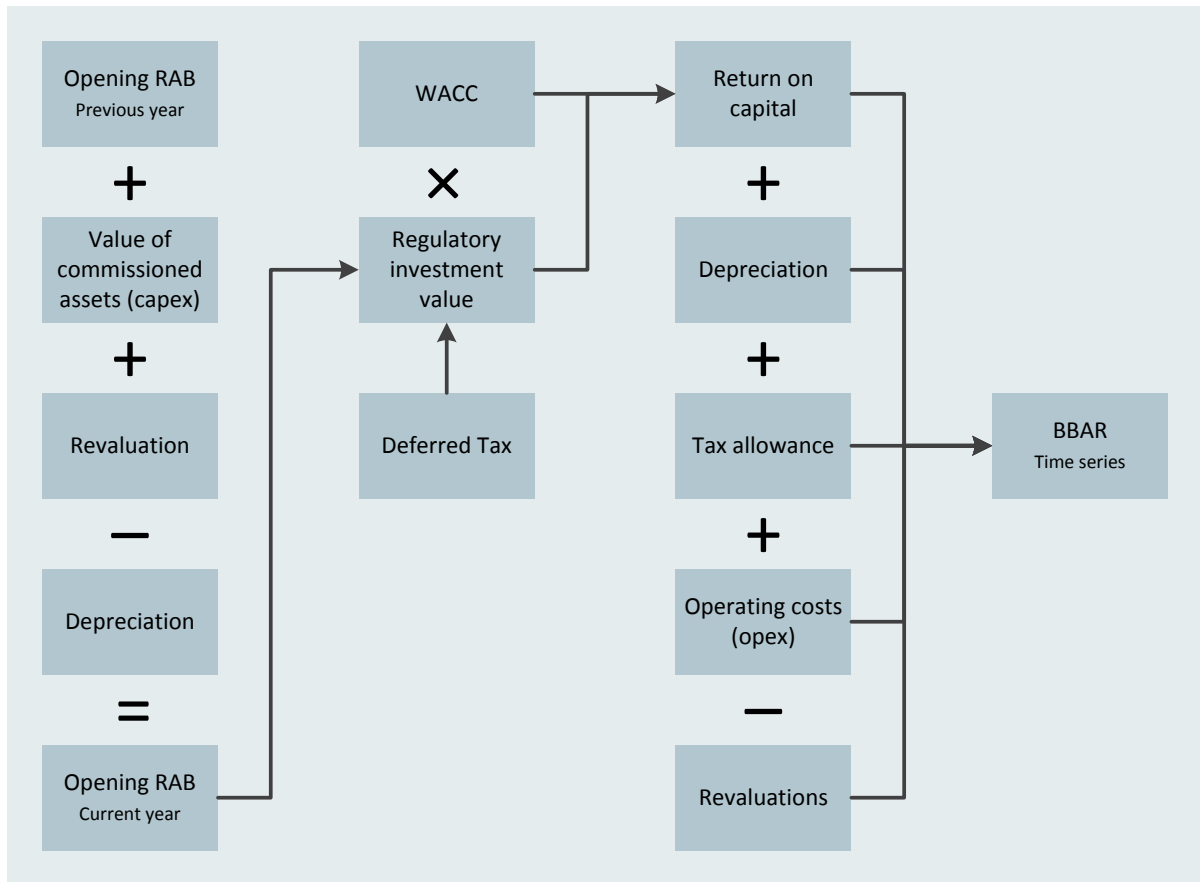
How we set the price path for Powerco's CPP

496. Powerco is the first EDB that is subject to a revenue cap form of control. In the 2016 IM review, we changed the form of control for EDBs from a weighted average price cap to a pure revenue cap. As part of this decision, we included a provision to allow for a 'wash-up' for under-recovery or over-recovery of revenue against the cap.^{144, 145}
497. For Powerco's CPP we have therefore specified the MAR by setting Powerco's forecast allowable revenue equal to a forecast of its costs including the return on and of the RAB. To be able to do that, we had to determine a building blocks allowable revenue (BBAR) for each year of the regulatory period. At the simplest level the BBAR is calculated using separate 'building blocks' as follows:

Return on capital – Revaluations + Depreciation + Operating costs (opex) + Tax allowance

¹⁴⁴ Commerce Commission "Input methodologies review decisions: Topic paper 1" (20 December 2016).

¹⁴⁵ We note the price setting and wash-up processes, including respective time value of money adjustments, are based on the approach applicable to gas transmission businesses which we discussed in detail in our reasons paper on the 2017 gas pipeline businesses DPP reset. Commerce Commission "Default price-quality paths for gas pipeline businesses from 1 October 2017" (31 May 2017), Attachment F.

Figure I1 How we calculate BBAR

498. The building block amounts vary depending on a number of factors, such as differences in the amount of capex and opex forecasts between the years. In order to derive a 'smoothed path' over the CPP period, we have then calculated the present value of BBAR over the CPP period. The discount rate used in this calculation is the weighted average cost of capital (WACC).

499. We have then determined the path of revenue that will enable Powerco to recover the present value of BBAR over the CPP period taking into account forecast inflation. This 'smoothed' path involved the calculation of MAR (and forecast net allowable revenue) for each year, and:¹⁴⁶

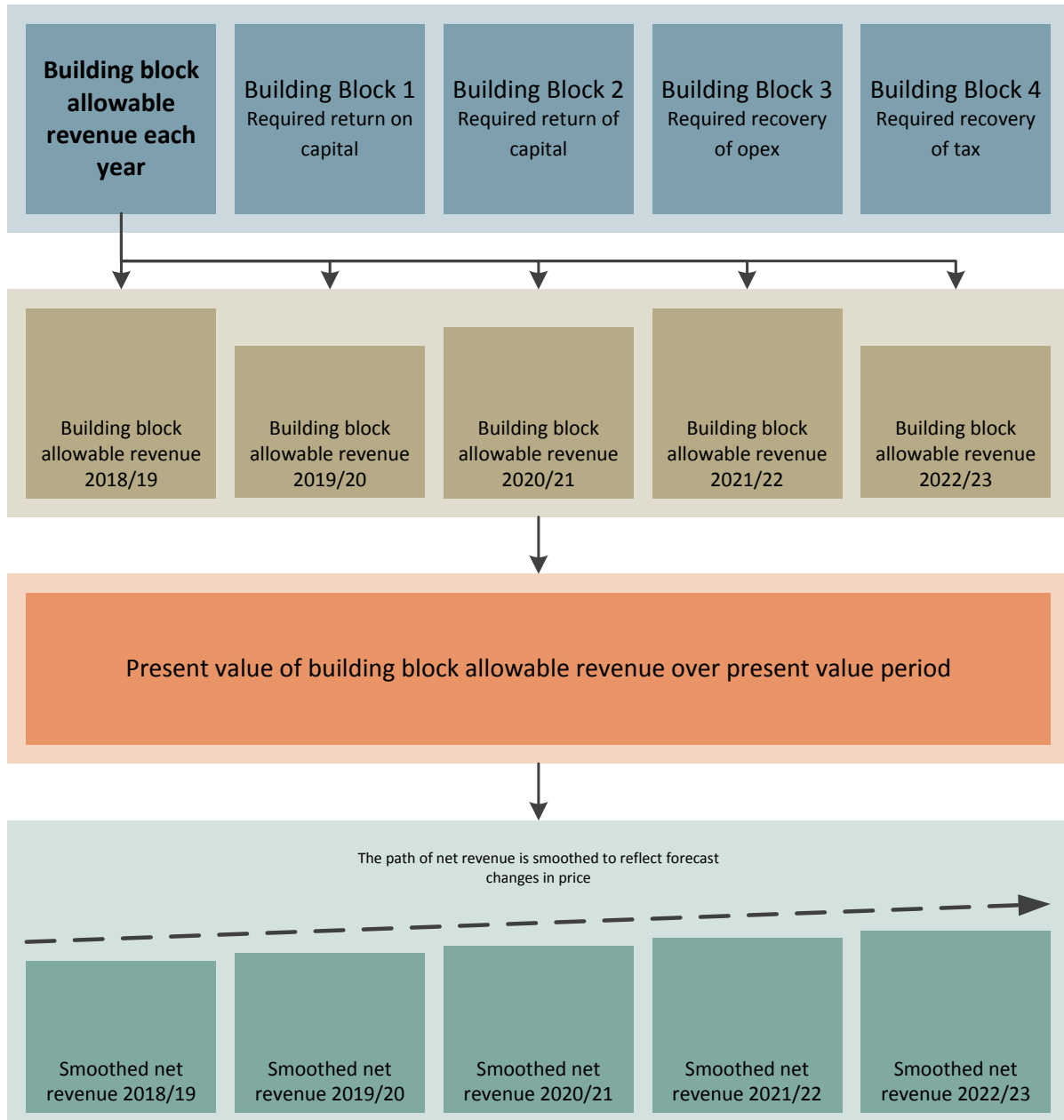
499.1 starts on 1 April 2018; and

499.2 determines the amount of revenue that Powerco can expect to recover through its electricity distribution charges between 1 April 2018 and 31 March 2023.

¹⁴⁶ Forecast net allowable revenue equals MAR plus forecast recoverable costs and pass-through costs.

500. Figure I2 below illustrates the approach we took in determining Powerco's BBAR and MAR over the CPP period.

Figure I2 From BBAR to MAR



501. In our 2013 Reasons Paper for Orion's CPP, we provided a comprehensive description of how we get from the expenditure forecasts to BBAR and MAR. We note that the Orion calculation also covers the application of claw-back and an X-factor other than zero to Orion's price path, which we have not applied for Powerco's CPP.¹⁴⁷

Our final MAR for Powerco

502. The total MAR over the CPP period is smoothed to determine a MAR before and after including an allowance for tax in each and every year of the CPP regulatory period. Over the five years of the CPP period, our decision reduces MAR by \$18 million.
503. The total MAR over the CPP period as well as the smoothed MAR series is almost identical to the MAR we set with our draft decision. This is because the only change to our draft decision with implications for MAR is a small increase in opex aimed at providing some funding for network evolution initiatives. This additional opex allowance of \$1.5 million (2016 real \$) translates into a \$2 million (nominal \$) increase in total MAR over the CPP period.
504. Table I1 below sets out the initial MAR in 2018/2019, which increases with CPI over the CPP regulatory period.

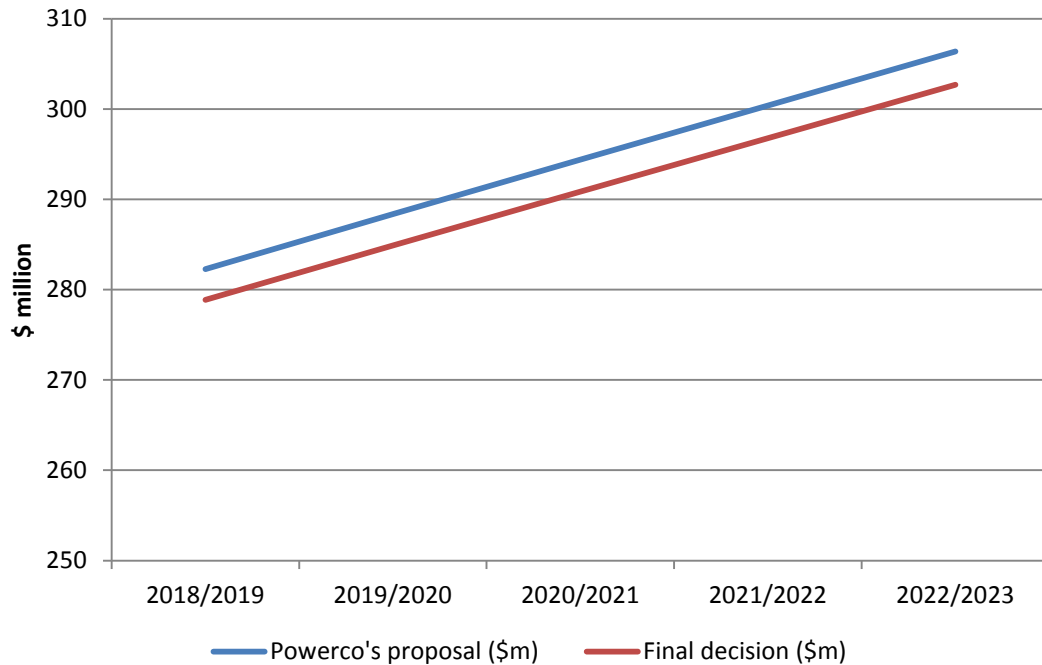
Table I1 Nominal MAR before tax (\$m)

	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023
Powerco's proposal	282	288	294	300	306
Our final decision	279	285	291	297	303
Difference	-3	-3	-4	-4	-4

¹⁴⁷ Commerce Commission "Setting the customised price-quality path for Orion New Zealand Limited" (29 November 2013), Chapter 4.

505. Figure I3 below compares Powerco's proposed annual MAR before tax with the one that we calculated for the decision.

Figure I3 Comparison of annual MAR before tax (\$m)



506. We have not applied an X-factor ('rate of change') to the MAR series (other than zero). The rate of change in MAR impacts the value of the initial MAR and the slope of the MAR series (or price path) over the CPP period. This means, if applied, an X-factor can increase or reduce the price change:
- 506.1 from the year prior to the CPP period to the first year of the CPP period; and
 - 506.2 from the last year of the CPP period to the first year of the subsequent pricing period.
507. The application of an X-factor that reduced the initial price change would, however, result in steeper year-on-year MAR increases.
508. We next outline the reasons for our decision not to apply an X-factor to the MAR series.

Retailers prefer a one-off price increase in the CPP period

509. In its CPP proposal, Powerco explains the impact of its expenditure forecast on MAR to be a 5.7% increase in the first year of the CPP period.¹⁴⁸ Our decision reduces this initial distribution price increase to 4.5%, followed by smaller year-on-year increases to account for inflation ('CPI-indexing'). In a scenario with no other changes to electricity prices, the increased revenue allowed by our decision translates into an initial 1.3% increase in total electricity cost for the average consumer.¹⁴⁹
510. As we explain in more detail later in this chapter, we expect another distribution price increase, driven by the additional capex during the CPP period, to occur in the subsequent pricing period. We estimate this second price increase can be around 10%, in addition to the initial 4.5% increase at the beginning of the CPP period.¹⁵⁰
511. Powerco consulted with its stakeholders on whether to smooth-out the MAR increase (and price increase) over the five-year period as opposed to having an initial step change increase in the first year of the CPP period. The feedback was not unanimous across all stakeholder groups. Retailers, however, preferred a one-off price increase as, according to their feedback, this was easier to administer.¹⁵¹
512. Our decision acknowledges the retailers' preference. We note, however, that customers will inevitably face further price adjustments (ie, in addition to CPI-indexing) during the CPP period. This is because:
- 512.1 While this paper was being drafted, Powerco was in the process of setting its electricity distribution prices for 2018/2019 (ie, the first year of the CPP period) on the basis of a MAR that was slightly different from the final MAR we have set with this decision. Therefore, an adjustment to the price path later in the CPP period will be necessary to offset this impact in an NPV-neutral way.
- 512.2 Also, as discussed in Attachment J the CPP price path will be reopened and the MAR will be adjusted for the years 2021-2023 when the DPP WACC is reset in 2019.

¹⁴⁸ Powerco "Customised Price-Quality Path – Main Proposal" (12 June 2017), Chapter 18.

¹⁴⁹ This calculation assumes that electricity distribution costs contribute 28% to the value of total consumer bills and that all increases will be passed on to consumers by retailers.

¹⁵⁰ For clarification, when we discuss price increases in this paper, we refer to the initial price increase at the beginning of a regulatory period – ie, not those that can occur during a regulatory period due to CPI-indexing or adjustments to the price path to account for a WACC reset.

¹⁵¹ Powerco "Customised Price-Quality Path – Main Proposal" (12 June 2017), page 228.

513. We acknowledge that the initial 4.5% distribution price increase can be significant to Powerco's customers. However, in our Issues Paper, we outlined our view that we consider the long-term pricing impact of Powerco's CPP proposal to be more relevant and asked for submissions on if and how this should be addressed in our decision.

There is uncertainty around future price increases

514. In our Issues Paper, we explained that there is likely to be a second and more material price increase, driven by the capex spend during the CPP period, in the transition from the five-year CPP period to the subsequent pricing period.
515. In particular, we outlined that our preliminary assessment of the impact of Powerco's proposal on the MAR in a subsequent five-year pricing period indicates another step change increase of around 10% in addition to the initial step change increase of 5.7% (now 4.5%).¹⁵² We estimated that this would translate into a further increase in total electricity cost (including generation, transmission, distribution and retail costs) of around 3% for the average consumer.
516. We noted that this impact would largely result from the fact that the opening RAB for the subsequent pricing period will include all of the commissioned assets from the CPP period, whereas the opening RAB of the CPP period is lower and the RAB only gradually increases while new assets are being commissioned.¹⁵³ Consequently, the average RAB in the subsequent pricing period could be considerably higher than in the CPP period.¹⁵⁴
517. We asked in our Issues Paper whether we should address this long-term pricing impact in the CPP period by adjusting the MAR series (through the X-factor) such that any price increases would be minimised from the CPP period to the subsequent pricing period. As an alternative to this potential solution, we sought feedback on whether we should leave the MAR series of the CPP period unchanged with a view to considering in the subsequent pricing period whether there is a price increase that should be minimised (through the X-factor) for that subsequent period.

¹⁵² In addition to the cumulative effects of CPI driven increase across the two regulatory periods.

¹⁵³ Our analysis uses Powerco's long term asset management plan (AMP) expenditure forecasts, an estimated WACC of 6.78% from 2021 onwards, and some simplifying assumptions for capex and depreciation.

¹⁵⁴ This is important to clarify as the return on the RAB throughout both pricing periods is likely to be the main contributor to the maximum revenues that Powerco will be allowed to make. As indicated by our preliminary analysis, a higher average RAB in the subsequent pricing period than in the CPP period is therefore likely to result in higher allowable revenues to Powerco.

518. We received mixed feedback on these questions. EDBs considered we should defer any decisions to mitigate future price increases until we make actual decisions about subsequent pricing periods, since there is currently too much uncertainty as to what these will look like.¹⁵⁵ MEUG and ERANZ focussed in their submissions on the extent of, and transparency around, the actual price increase.¹⁵⁶ They did not, however, provide views as to how a potential subsequent price increase should be addressed.
519. Given the views provided in submissions, especially those from customers or customer groups, do not clearly express a preference that we should aim to minimise these MAR increases, we have not adjusted the MAR series to minimise future price increases. Also, we share the views expressed by some EDBs, including Powerco, regarding uncertainty as to what the future price increases will be.¹⁵⁷
520. In particular, the extent of the price increase in the subsequent pricing period would depend on Powerco's 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 be significantly different from the assumptions we used in the preliminary analysis we did for the Issues Paper.
521. However, 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. Despite significant uncertainty around the extent of this second increase, we continue to be of the view that the distribution price uplift could be more substantial in the longer term due to the extent and timing of capital expenditure in the CPP period.¹⁵⁸
522. In submissions on our draft decision, both Molly Melhuish and Grey Power Federation commented on the long-term pricing impact of the CPP decision, arguing that a subsequent price increase should be avoided. For example, Grey Power Federation submitted the following:¹⁵⁹

To be explicit, in this case PowerCo seeks to recover the cost from consumers of bringing its asset base up to current standards of quality and resilience, and then argues that the out years cost to consumers of service delivery should be based on that re-valued asset base.

We consider this proposed practice not only anti-competitive but directly exploitative and urge the Commission to reject this part of the proposal outright.

¹⁵⁵ For example, Aurora Energy "Submission on Powerco CPP Issues paper" (22 September 2017), Chapter 7.

¹⁵⁶ For example, MEUG "Submission on Powerco CPP Issues paper" (22 September 2017), Part 2.2.

¹⁵⁷ For example, Powerco "Submission on Powerco CPP Issues paper" (22 September 2017), para 39.

¹⁵⁸ We note that our modelling of the subsequent distribution price increase uses the long term expenditure forecasts Powerco provided with its CPP proposal. As such, the price increase is already partially offset by Powerco's anticipation of lower opex in the subsequent pricing period (which is in line with our expectation of decreasing opex levels).

¹⁵⁹ Grey Power Federation "Submission on Powerco CPP draft decision" (15 December 2017), page 2.

523. We understand these concerns and will look at the issue again when Powerco transitions from the CPP price path to the price path under the subsequent pricing period. However, MAR and therefore prices will be set on the basis of an increased asset base in the subsequent pricing period. As explained above, this is a result of the capital expenditure during the CPP period and ensures Powerco can recover the costs of maintaining and growing its network over the lifetime of the assets (which expands significantly beyond the five years of the CPP period).
524. In the absence of such an expectation to recover costs, Powerco and other suppliers of electricity distribution services would have no financial incentive to invest in maintaining and growing their networks. On these grounds, we also reject Grey Power Federation's statement about 'anti-competitiveness' and 'exploitation', as suppliers' expectation to recover costs in regulated markets is in line with common practices in competitive markets.

Our analysis captures the full extent of the long-term pricing impact

525. We consider that our preliminary analysis, despite being uncertain, captures the full extent of the long-term pricing impact of Powerco's CPP.
526. ERANZ submitted, in order to make the full extent of the long-term pricing impact visible, we should have attempted to model Powerco's MAR for the entire lifetime of the additional assets Powerco forecasts to create/acquire during the CPP period. We should have then compared that to the MAR that Powerco would be entitled to if it continued to be on a DPP for the same period. In other words, the full extent of the long-term pricing impact of the CPP would have had to be calculated as the difference in MAR resulting from the additional expenditure under a CPP scenario and under continuation of the DPP regime – both modelled for the entire lifetime of the proposed additional assets.¹⁶⁰
527. While it is possible that such an analysis may have provided a potentially more accurate estimate, we consider the accuracy benefits would have been unlikely to outweigh the cost involved for us and Powerco in undertaking it. More importantly, increased accuracy in our analysis would have been unlikely to cause us to reach a different conclusion on our decision.
528. This is because: as outlined below, the benefits of using the type of model suggested in our analysis are limited and carry with them uncertainty:
- 528.1 We agree that the additional costs consumers will have to pay are the incremental opex during the CPP period and the incremental capex recovered over the life time of the assets (in net present value terms), relative to what Powerco would be able to recover if it continued to be under a DPP. The full extent of the price increase (in percentage terms), however, will be realised

¹⁶⁰ TDB Advisory on behalf of ERANZ "Submission on Powerco CPP Issues paper" (22 September 2017), Chapter 4.

when the RAB has been fully updated for all additional capex in the CPP period, as the return on and of this capex will not rise any further in later periods¹⁶¹ – this addresses ERANZ's view that the analysis should be underpinned by full lifecycle modelling.

- 528.2 The initial distribution price increase of 4.5% compares the MAR Powerco would be entitled to under our CPP decision to the MAR Powerco expects to recover if it continued on a DPP – this addresses ERANZ's view that the long-term pricing impact should be assessed by comparing the MAR under the CPP to the MAR under a DPP.
- 528.3 Despite indicating above that rolling over the MAR to the next regulatory period the way Powerco did it is a possible option, there is uncertainty as to what the MAR under the next DPP would look like.
529. The costs of undertaking such an analysis for us and Powerco would have been likely to be high, because this would have required:
- 529.1 Powerco to provide a new full life cycle CPP model (which is not an IM requirement), incorporating an assumption as to how Powerco would transition from the price path in the CPP period to the price path in the subsequent period (DPP or CPP);
- 529.2 The Commission, in order to enable Powerco to provide the above, to confirm to Powerco how it would transition from the price path in the CPP period to either a DPP or CPP;
- 529.3 The Commission to model a full lifecycle DPP counterfactual; and
- 529.4 Powerco to provide an expenditure forecast that only included DPP capex and opex.

Pass-through and recoverable costs for the CPP period

530. The categories of pass-through costs and recoverable costs that Powerco may recover in its prices (and that are not included in the BBARs, MARs or the setting of the price path) are defined in the IMs. Although these additional costs increase the amounts payable by consumers, they are not reflected in our estimated initial MAR increase.

¹⁶¹ For clarification, the RAB will be fully updated for the capex during the CPP period at the start of the subsequent pricing period – ie, this is why we consider the full extent of the price increase resulting from Powerco's expenditure during the CPP period is captured by our analysis.

531. We are required to specifically determine the following amounts in the CPP determination:

531.1 The CPP assessment fee is \$1.3 million.¹⁶²

531.2 The fee payable to the Verifier for Powerco's CPP proposal is \$369,286.

531.3 The auditor's costs for Powerco's CPP proposal is \$375,314.

531.4 The independent engineer's fees for Powerco's CPP proposal is nil.

Financial model that demonstrates our price path draft decision

532. We have published the financial model that supports our decision on Powerco's CPP alongside this paper.

533. We reviewed and used the financial model that Powerco provided with its CPP proposal. We are confident Powerco's financial model calculates an accurate and IM-compliant MAR series as:

533.1 it has been extensively reviewed by Powerco's independent auditor and us for IM compliance and mathematical correctness;

533.2 the BBAR and MAR module of the financial model is based on the financial model we created and published for Orion's CPP (and which was subject to significant scrutiny); and

533.3 historical data used in the model to determine cost input parameters such as the opening RAB were reviewed by Powerco's independent auditor.

534. We met with Powerco's independent auditor to understand the scope of its review and its approach to the review. We are satisfied the audit and assurance testing carried out by the independent auditor covered all relevant areas and was done to a professional standard.

Incremental rolling incentive scheme

Powerco's capex is subject to IRIS

535. The input methodologies set out that any capex under a CPP will be subject to an incremental rolling incentive scheme (IRIS).¹⁶³

¹⁶² This is an estimate. Once determined, we will charge Powerco with the actual cost. Any differences will be washed-up.

¹⁶³ *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, clause 3.3.10(1)

536. This means that any over- or under- spend against Powerco's capex allowance will be shared between consumers and Powerco – ie, if Powerco under-spends against its capex allowance, it will get to keep some of that saving and some will be shared with consumers.
537. The retention rate is the percentage of any over- or under- spend on capex that Powerco retains – ie, how much consumers pay of any over-spend and how much consumers save of any under-spend.

We are required to set the retention rate for Powerco's CPP

538. Under DPP the current retention rate is 15%, however the retention rate for the capex IRIS is set in the CPP determination.
539. This means that we have to specify the specific retention rate to apply to Powerco for its CPP. This includes the flexibility to set a different retention rate to the DPP—if appropriate—in order to alter its incentives to manage over- and under- spend against its capex allowance.

Our decision is to use the same retention rate as the DPP

540. Powerco will be subject to the same 15% retention rate for capex under IRIS as the DPP. We consider this appropriate because:
- 540.1 Powerco's work programme is substantial and will be challenging to deliver. A higher retention factor could have incentivised Powerco to under-deliver, or reward it for under-delivery of the investments required to stabilise network reliability and meet capacity needs on its network. Our views on the deliverability of Powerco's work programme, are discussed further in Attachment K.
- 540.2 While we want to incentivise delivery of Powerco's work programme, we consider Powerco should still have some incentive to ensure its costs are efficient and the benefits of any cost savings are also shared with consumers. We consider 15% retention rate broadly achieves this, and a lower retention factor would provide a very limited incentive for Powerco to ensure its costs are efficient.

Attachment J IM variations

Purpose of this attachment

541. This attachment outlines how we intend to proceed on Powerco's proposed IM variations¹⁶⁴ on the:

541.1 WACC used during the CPP period;

541.2 the definition of distributed generation allowance – ie, the treatment of avoided cost of transmission (ACOT) payments under the IMs that are no longer required to be made due to amendments to Schedule 6.4 of the Electricity Industry Participation Code (Code); and

Summary

WACC used during the CPP period

542. We intend to agree with Powerco's proposed variation to the IMs to use:

542.1 the current DPP WACC rate (7.19%) to calculate the price path for that part of the CPP regulatory period that coincides with the current DPP regulatory period (2019-2020); and

542.2 Powerco's estimate of the DPP WACC rate (6.78%) for that part of the CPP regulatory period that coincides with the initial years of the subsequent DPP regulatory period (2021-2023).

543. We note that the IMs would require us to calculate Powerco's price path using the current DPP WACC throughout the five years of the CPP period.

544. We set out in Table J1 below a comparison of the CPP IM-compliant WACC rate for each assessment year of the CPP period and the WACC rates under this IM variation.

Table J1 WACC rate options during CPP period

Option	2019	2020	2021	2022	2023
CPP IM-compliant	7.19%	7.19%	7.19%	7.19%	7.19%
IM variation	7.19%	7.19%	6.78%	6.78%	6.78%

¹⁶⁴ Section 53V(2)(c) of the Commerce Act allows us in determining a CPP to vary the IMs with the agreement of the supplier.

The definition of distributed generation allowance

545. Our decision is to not agree to Powerco's proposed variation to the IMs to allow it to recover any ACOT payments that were made in accordance with a connection contract which complied with the Code at the time the contract was entered into.

IM amendment to the WACC rate to be used during the CPP period

The IMs require us to reopen and update Powerco's price path for the DPP reset WACC rate

546. Following our review of the IMs in 2016, we changed the WACC rate that we use to determine CPPs. We now use the current prevailing DPP WACC to calculate the price path, rather than the most recent estimate.
547. The IMs then require us to reopen the CPP price path when the DPP WACC changes as a result of setting a new DPP (this will occur for Powerco on 1 April 2020 and take effect for 2021-2023).
548. A CPP price path that continues into a new DPP regulatory period will then be recalculated using the new WACC, revaluation rate and cost of debt. Accordingly, if unvaried, the IMs would require us to assume, when evaluating the CPP proposal and calculating the initial price path, that in the absence of any indication of the WACC rate that will apply from the next DPP reset, the current DPP WACC will prevail for the entirety of the five-year CPP regulatory period.¹⁶⁵

Summary of our decision

549. Our decision is to agree to Powerco's proposed IM variation to use the current DPP WACC rate of 7.19% in 2019 and 2020 and a forecast WACC rate of 6.78% from 2021-2023. We consider this reasonable as it is aimed at minimising price volatility during the CPP period (as opposed to applying the IMs).
550. We note this is unchanged from our draft decision as the submissions we received did not change our view.

Powerco's proposal

551. Powerco assumes, based on current and projected forecasts of interest rates, that the current DPP WACC is likely to be adjusted downwards when it is next reset in 2020. If this proves correct, it would mean that:
- 551.1 the price path derived at the commencement of the CPP regulatory period would overstate the impact of the full eventual CPP regulatory period on prices; and

¹⁶⁵ Even if it is likely that the DPP WACC will decrease or increase at the next DPP reset.

- 551.2 consumers may experience more significant price changes as a consequence of the CPP: at the commencement of the CPP, and then again when the DPP WACC rate resets.
552. To address this price volatility, Powerco has proposed a variation to the IMs that would allow us to:
- 552.1 use the current DPP WACC to calculate the price path for that part of the CPP regulatory period that coincides with the current DPP regulatory period; and
- 552.2 use a forecast of the DPP WACC rate for that part of the CPP regulatory period that coincides with the initial years of the subsequent DPP regulatory period.
553. The resulting CPP MAR would then produce a revenue reset that reflects the anticipated DPP WACC rate decrease in a smoothed, average path. This will minimise the likely variance between the price path that is forecast at the outset of the CPP regulatory period and the adjusted CPP price path that will ultimately result from the DPP WACC rate reset in 2020.
554. Further explanation of this issue and Powerco's proposed approach is available in Powerco's CPP application document.¹⁶⁶

Our draft decision

555. Our draft decision was to accept Powerco's proposed IM variation to use the current DPP WACC rate of 7.19% in 2019 and 2020 and a forecast WACC rate of 6.78% from 2021-2023. We considered this reasonable as it was aimed at minimising price volatility during the CPP period (as opposed to applying the IMs).
556. In their submissions on our Issues Paper, both Contact Energy and MEUG favoured certainty of the WACC rate over the CPP period and considered that we should set a WACC rate that is specific for the CPP period and that will cover the entire five years.¹⁶⁷
557. We agreed that such an approach would result in absolute certainty as to the contribution of the WACC rate to the price path over the entire regulatory period. We noted, however, the IMs prevent us from doing so and we did not consider it appropriate to vary the IMs in a way that we could set a WACC specific to the CPP period.

¹⁶⁶ Powerco "Customised Price-Quality Path – Application" (12 June 2017), Chapter 8.1.

¹⁶⁷ Contact Energy "Submission on Powerco CPP Issues paper" (22 September 2017), page 9 and MEUG "Submission on Powerco CPP Issues paper" (22 September 2017), para 2.13.

558. We also explained we had only just consulted on and changed the approach on the WACC rate as part of our IM review decisions in 2016.¹⁶⁸ Furthermore, a variation to the IMs would have required Powerco's consent as it requires mutual agreement between us and the CPP applicant.
559. Contact Energy also had different views of what the assumptions on debt premium and risk-free rate should be that underpin Powerco's forecast of what the DPP WACC rate might be when it is next reset. In that regard, Contact Energy considered Powerco should have provided more transparency so that interested parties could have better engaged with its proposal.¹⁶⁹
560. We considered the merits of determining a forecast ourselves of what the DPP WACC rate might be when it is next reset, and concluded there is limited value in doing so. We noted that:
- 560.1 we shared Powerco's view that the WACC rate, when it is next reset, is likely to decrease from where it was at the last DPP reset and that a forecast of 6.78% is a reasonable forecast; and
- 560.2 the cost in determining a forecast WACC rate which may, potentially, be more accurate is unlikely to outweigh the benefits, as the price path will be, when it is reopened, adjusted for the actual DPP WACC anyway. Any resulting revenue differences caused by the forecast WACC rate used when we initially set the price path will be washed-up at this stage.

Submission on our draft decision

561. Only Fonterra submitted on our draft decision on Powerco's proposed IM variation. Fonterra objected to forecasting the "DPP WACC for part of the CPP period, as there is uncertainty in what the future variables may actually be. Prices should be cost reflective as much as possible".¹⁷⁰

How we intend to proceed

562. In deciding to agree on a variation of the IMs to use the current DPP WACC rate of 7.19% in 2019 and 2020 and a forecast WACC rate of 6.78% from 2021-2023, we reviewed all submissions and cross-submission on our draft decision. Having regard to these submissions, we retain our draft decision to agree to Powerco's proposed variation.
563. Based on the expenditure that Powerco will be able to recover, our agreement with Powerco's proposed variation would reduce the MAR across the CPP period by \$29

¹⁶⁸ Commerce Commission "Input methodologies review decisions: Topic paper 4 – Cost of capital issues" (20 December 2016), Chapter 6.

¹⁶⁹ Contact Energy "Submission on Powerco CPP Issues paper" (22 September 2017), pages 10-11.

¹⁷⁰ Fonterra "Powerco's proposal to Customise its Prices and Quality Path Standards Draft Decision", 14 December 2017, para 3.1.

million (in nominal terms), which is equivalent to a decrease of 2.0%. More importantly, it results in a lower initial price increase of 4.5%, as it would otherwise be at 6.6%.

564. We share Powerco's view that the DPP WACC rate, when it is next reset, is likely to decrease from where it was at the last DPP reset and that a forecast of 6.78% is reasonable. This is based on the assumption that the risk-free rate, as the main moving part in the WACC, is likely to be lower than the prevailing rate at the next reset.¹⁷¹
565. We therefore consider it reasonable to build this assumption into Powerco's price path, as this should reduce price volatility for consumers when we reopen and update the CPP price path for the actual DPP WACC rate when it is reset in 2020. To put this into context, not accepting Powerco's proposed IM variation would mean, provided WACC is actually set at 6.78% when it is reset in 2020, that the full impact of \$29 million on the price path (plus the time value of money for the over-recovery in the first two years of the regulatory period), as explained above, would have to be washed-up across the remaining three years of the regulatory period.
566. In response to Fonterra's view that "prices should be cost reflective", we note that varying the IMs to be able to use a WACC in resetting Powerco's prices that is likely to be closer to the DPP WACC rate, when it is next reset, will better enable Powerco to maintain its financial capital on an *ex-ante* basis. In other words, on a forward-looking basis, Powerco will have an improved expectation to recover its cost of capital. As we explain above, applying the IMs would likely result in an overstatement of prices in the order of \$29 million, as prices would be based, amongst other things, on an overstated cost of capital that would have to be returned to customers in the later years of the regulatory period.
567. We also share Fonterra's view that "there is uncertainty in what the future variables may actually be". We disagree, however, that this should prevent us from using a forecast DPP WACC rate for the later years of the CPP period. As outlined before, we are confident that the DPP WACC, when it is next reset, will be below the WACC rate that was used when the last DPP was set. Our agreement with Powerco's proposal therefore removes uncertainty from the price path (as opposed to adding further uncertainty to it), as it is likely to result in a smaller price change including a smaller subsequent wash-up when the DPP WACC is actually reset.

¹⁷¹ The EDB DPP decision was based on a risk-free rate as of September 2014, which was 4.09%. At the time this paper was drafted, the risk-free rate was 2.38%.

Proposed IM variation to the definition of distributed generation allowance

Some ACOT payments will not be mandated by the Code anymore

568. Schedule 6.4 of Part 6 of the Code has been amended such that EDBs are no longer required to make payments to distributed generators (DGs) which do not, as determined by the Electricity Authority,¹⁷² efficiently deter or avoid transmission costs. However, some EDBs, including Powerco, have entered into connection contracts with DGs that mandate continued payments even if the Code no longer requires them.
569. Under the definition of 'distributed generation allowance', the IMs specify ACOT payments as a recoverable cost, provided they were made in accordance with Schedule 6.4 of Part 6 of the Code or the Electricity Industry Act.

Summary of our decision

570. Our decision is to not agree to Powerco's proposal to vary the IMs in a way that would allow recovery of any ACOT payments which no longer comply with the Code, but that were made in accordance with a connection contract which complied with the Code at the time the contract was entered into.
571. We note this is unchanged from our draft decision as we did not receive any submissions or further information on this issue to change our view.
572. We consider there should be an incentive for EDBs and Powerco to terminate those contracts that do not efficiently deter or avoid transmission costs. Continuing to allow the recovery of these ACOT payments would not be in the long-term benefit of the consumers, as this would continue to incentivise DGs to keep operating generation projects that would be considered inefficient under the amended Code.

Powerco's proposal

573. Powerco proposed that "it would be appropriate to clarify the definition of distributed generation allowance to confirm that it extends to ACOT payments made pursuant to contracts that were in accordance with Schedule 6.4 at the time they were entered into". If we disagreed, Powerco considers we should "amend the definition of distributed generation allowance to provide expressly for that continued treatment".
574. Powerco considers that contractually committed ACOT payments should remain recoverable, as:

These obligations were entered into prudently and in good faith reliance on the regulatory regime that prevailed at the time. In entering into connection contracts intended to underwrite substantial long-term investments, EDBs and generators were entitled to rely on the durability of the regulatory framework for connection of distributed generation.

¹⁷² On the recommendation of Transpower

Accordingly, exposing EDBs to unrecoverable costs in relation to contracts that were prudent and efficient at the time they were entered into would be contrary to the purpose of Part 4, as it would undermine incentives to innovate and invest.

575. Further explanation of this issue and Powerco's proposed approach is available in Powerco's CPP application document.¹⁷³

Our draft decision

576. Our draft decision was to not agree to Powerco's proposal to vary the IMs in a way that would allow recovery of any ACOT payments which no longer comply with the Code, but that were made in accordance with a connection contract which complied with the Code at the time the contract was entered into.
577. We accepted that these contracts "were entered into prudently and in good faith reliance on the regulatory regime that prevailed at the time". However, we considered there should be an incentive for EDBs and Powerco to terminate those contracts that do not efficiently deter or avoid transmission costs. Continuing to allow the recovery of these ACOT payments would not have been in the long-term benefit of the consumers, as this would have continued to incentivise DGs to keep operating generation projects that would be considered inefficient under the amended Code.

Submissions on our draft decision

578. We did not receive any submissions on our draft decision regarding the treatment of ACOT payments.

Our decision

579. Our decision is unchanged from our draft decision as we did not receive any submissions on the issue. As we outline it above, we consider there should be an incentive for EDBs and Powerco to terminate those contracts that do not efficiently deter or avoid transmission costs
580. Our decision is consistent with our 2014 amendments to the IMs, where we modified the treatment of avoided transmission charges associated with distributed generation by:
- 580.1 introducing a new definition of 'distributed generation allowance' in clause 1.1.4(2); and
 - 580.2 adding a new recoverable cost term to the list of recoverable costs in clause 3.1.3(1)(f).

¹⁷³ Powerco "Customised Price-Quality Path – Application" (12 June 2017), Chapter 8.3.

581. In our final reasons paper, we noted explicitly that these amendments were designed to "allow any changes implemented in accordance with the Electricity Industry Act 2010 to be accommodated".¹⁷⁴
582. We explained that "the addition of a new recoverable costs term means that we can be flexible in the event of any changes to the Electricity Authority's Electricity Industry Participation Code regarding avoided transmission charges associated with distributed generation." Accordingly, we were clear that the impact of any Code changes (including amendment to Schedule 6.4) was intended to flow through immediately, and, indeed, we highlighted this potential scenario in the final reasons paper.¹⁷⁵
583. We also consider that varying the IMs would be contrary to the purpose of IMs as set out in section 52R of the Commerce Act. This is because it would not promote certainty, as it requires two separate interpretations:
- 583.1 Post-Code amendment interpretation – to include ACOT payments by EDBs to DGs where they are approved by the Electricity Authority as being necessary to enable Transpower to meet the grid reliability standards (ie, where those payments remain within the scope of Schedule 6.4 following the recent Code amendments); and
- 583.2 Pre-Code amendment interpretation – to include ACOT payments by EDBs arising from contracts that were in accordance with the Code at the time those contracts were entered into, even though the EDBs would not now be required to enter into those obligations.

We disagree with Powerco's interpretation of the IMs

584. We disagree with Powerco's interpretation of the IMs. The definition of 'distributed generation allowance' refers to "amounts payable...in relation to avoided transmission charges arising from distributed generation...*in accordance with* Schedule 6.4 of Part 6 of the Electricity Industry Participation Code or the Electricity Industry Act 2010" (emphasis added). We consider that the clear meaning of these words is that in order for the definition to cover such payments, they must be required by Schedule 6.4 as it stands at the time that the payment was made (ie, incorporating any amendments).
585. Importantly, the focus of the definition is on the payment, and not on the contract or arrangements under which it is made.

¹⁷⁴ Commerce Commission, *Input methodology amendments for electricity distribution services – Default price-quality paths* (27 November 2014), page 34 (<http://www.comcom.govt.nz/dmsdocument/12724>).

¹⁷⁵ We note that when consulting on this amendment to the IMs, we did not receive any submissions that opposed this amendment

586. If Powerco has entered into connection contracts with DGs that mandate continued payments, even though those payments are no longer required by Schedule 6.4, then, in our view, those payments would be made solely under the connection contract, and not 'in accordance with' the provisions of the Code or the Electricity Industry Act. These ongoing contractual payment obligations will not constitute 'amounts payable' in relation to ACOT payments made in accordance with the Code, as the Code and/or Act no longer requires such payments to be made.

Powerco's financial exposure can be substantially mitigated

587. ACOT payments will continue to be recoverable under clause 3.1.3(f) of the IMs until the Code amendments come into effect.
588. The Code amendments come into effect on a staggered basis:
- 588.1 1 April 2018 – the lower South Island.
 - 588.2 1 October 2018 – lower North Island.
 - 588.3 1 April 2019 – upper North Island.
 - 588.4 1 October 2019 – upper South Island.¹⁷⁶
589. Following these respective dates, ACOT payments will continue to be recoverable for those payments that are made in accordance with the Code, as amended (ie, payments by EDBs to distributed generators that are approved by the Electricity Authority as being necessary to enable Transpower to meet the grid reliability standards).
590. Any ACOT payments that fall outside the scope of the Code will cease to be recoverable under the IMs. This includes instances where the ACOT payment is outside the scope of the amended Code but continues to be required under connection agreements entered into between EDBs and distributed generators prior to the Code amendment.
591. We understand, however, that the financial exposure of some EDBs, potentially including Powerco, may reduce significantly once the Electricity Authority's new transmission pricing methodology guidelines (TPM) are in place and implemented by Transpower. Prior to these being published, it is unclear how to determine the quantum of the ACOT payments that will comply with the revised Code and those payments that will fall outside it. However, we expect that at least some of the ACOT payments may continue to be Code compliant and therefore will remain recoverable under the IMs.

¹⁷⁶ Clause 4 of Schedule 6.4 of Part 6 of the Code

592. For EDBs, including Powerco, with connection contracts that cannot be amended or terminated and that will no longer comply with the Code, the ACOT payments will become an operating expense and will be subject to the same incentives as other operating expenditure. Pursuant to the IRIS incentive adjustment in the IMs (Part 3, subpart 3), Powerco will be able to recover up to two-thirds (in net present value terms) of the otherwise unrecoverable ACOT expense in the subsequent regulatory period.
593. This will effectively limit Powerco's financial exposure to only one-third of the ACOT payments they would continue to be obliged to make under pre-existing arrangements.

Correction to Opex IRIS drafting

594. We have amended the drafting of the Opex IRIS to allow the policy intent to apply as intended to Powerco's CPP.
595. In 2016, as part of the IM review, we made a change to the Opex IRIS. The policy change was to introduce a smoothing adjustment to spread the previously second year adjustment over the whole regulatory period.
596. The IM amendment implementing the policy change incorrectly referred to the DPP regulatory period rather than the regulatory period. A variation to the IMs is required to allow the Opex IRIS policy intent to appropriately apply under a CPP.
597. Clause 3.3.2 of the IMs is varied so that it refers to the regulatory period rather than DPP period.

Attachment K Delivery of CPP

Purpose of this attachment

598. This attachment outlines our final decision on how Powerco should demonstrate it is delivering its planned works programme in the CPP period.

Summary of our final decision

599. We are introducing a new compliance obligation for Powerco to provide a CPP Annual Delivery Report for each year of the CPP period using our powers under s53ZD of the Commerce Act.¹⁷⁷
600. The Annual Delivery Report must be provided by 31 August each year and cover each year of the CPP period.
601. We have introduced this requirement to ensure customers have transparency as to how Powerco is progressing in delivering the investment set-out in our CPP final decision.
602. As we explain in this attachment, we consider customers are entitled to have transparency around how Powerco is progressing in delivering the increased investment for which it is seeking additional revenues.¹⁷⁸
603. We are requiring that Powerco should convene at least one stakeholder event, in each of its Eastern and Western zones, in each year of the CPP, to formally present its CPP Annual Delivery Report. This will provide customers and wider stakeholders with the opportunity to question Powerco on the progress of its CPP works programme.
604. Furthermore, we will hold an annual 'technical' meeting with Powerco for each year of the CPP period. This is intended to allow us to undertake a detailed question and answer session with Powerco to better understand the progress it has made in each year of the CPP, and that Powerco is delivering its proposed programme of works as forecasted.

¹⁷⁷ Under s 53ZD of the Commerce Act the Commission may require a supplier to produce certain information.

¹⁷⁸ We also publish an online tool to make all electricity lines companies' performance data more accessible. This can be found at: <http://comcom.govt.nz/regulated-industries/electricity/performance-analysis-and-data-for-distributors/performance-accessibility-tool-for-electricity-distributors/>

The need for additional transparency of CPP deliverables

605. We acknowledge that Powerco's CPP proposal represents a significant increase in expenditure compared to historical performance. Given the size, scope and scale of this expenditure, we also appreciate that securing the required resources in a market of limited size such as New Zealand can sometimes prove problematic.
606. In our Issues Paper and draft decision we sought views on whether stakeholders had concerns in this regard. Responses to our Issues Paper and Draft Decision confirmed our early view that, given the nature and extent of Powerco's proposed increased work programme in the CPP, we should further consider options to ensure Powerco delivers what it has set-out in its CPP proposal.

Submissions on our draft decision

607. MEUG noted that the CPP Annual Delivery Report provided both opportunities and downsides.^{179, 180}

One overall comment is that the APR should each year state CPP approved outcomes for the year just ended and or the cumulative approved outcome to that year and or target CPP 5-year approved targets and actual outcomes. Brief narratives, as proposed in the draft APR, are helpful as a guide to readers to quickly understand core drivers of actual outcomes. The APR must be presented in such a way that the progress against the CPP approvals are consistent with and reconcilable to the latest AMP and annual information disclosures.

Powerco submitted on several details of the Annual Delivery Report proposed by the Commission. The submissions by Powerco reinforced with us the view that this is not a trivial exercise. We don't think it is productive for the Commission to put resources into fine tuning the Commission's expectations of what might be in the Annual Delivery Report before the final determination date when resources should be deployed undertaking a CBA.

608. In its submission on our draft decision, Powerco emphasised it remains confident in its ability to deliver its proposed CPP programme of works, and supported our proposals for a CPP Annual Delivery Report.¹⁸¹

We fully support the Commission's draft decision to introduce a requirement for us to produce an annual delivery report explaining progress against what was forecast during the CPP period.

Our consultation with our stakeholders and customers indicates that greater transparency around how we are progressing with our work would be well received.

¹⁷⁹ Major Electricity Users' Group response to Powerco CPP draft decision; paragraphs 12-15, page 3.

¹⁸⁰ Major Electricity Users' Group response to Powerco CPP draft decision – cross submission; 15 December 2017 paragraph 12, page 5.

¹⁸¹ Response to The Commerce Commission 'Powerco Customised Price-quality Path Draft Decision' consultation paper, Powerco, 15 December 2017; paras 28-39, page 5.

609. Fonterra noted that:¹⁸²

The APR document looks like a step in the right direction but there is no way to ensure customer feedback is taken on board to drive improvement in the following years. Fonterra recommends that CC consider how such an improvement could be incorporated.

Fonterra supports MEUG's submission around the questionable benefit of Powerco using staff time to generate a detailed report that has no contractually enforceable metrics.

610. Contact Energy were not supportive of our proposals for a CPP Annual Delivery Report:¹⁸³

An end of year reporting processwould not be an effective tool that would lead to any material change. It would impose costs on networks for no apparent purpose in preparing documents that would be of no practical use to anyone. It would not serve the purpose of Part 4.

Our final decision

611. 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.

612. 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.

613. 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.

614. We do not agree with the views of MEUG and Contact Energy that the production of a CPP Annual Delivery Report will result in placing unnecessary time and regulatory cost burdens upon Powerco or that it is of little practical value to stakeholders.

¹⁸² Fonterra response to Powerco's proposal to Customise its Prices and Quality Path Standards Draft Decision; 14 December 2017; paragraphs 5.1 & 5.2, page 4.

¹⁸³ Contact response to Powerco CPP draft decision; 15 December 2017; paragraphs 4.15 & 4.16, page 12.

615. On the contrary, our discussions with Powerco have lead us to the clear view that the CPP Annual Delivery Report is already driving improvements in the way Powerco will internally monitor and report its progress of key deliverables in the CPP period. This outcome is consistent with similar annual reporting requirements in other overseas jurisdictions, where EDBs are held accountable for delivering the projects and programmes of work for which they are funded by customers.¹⁸⁴
616. Powerco has re-affirmed its commitment to us to produce the CPP Annual Delivery Report as it considers this is a progressive step forward in demonstrating stakeholder value for money.
617. It is also important to recognise that the formation of the CPP Annual Delivery Report requirements has only required minimal input from the Commission and has not resulted in detracting resources from other aspects of assessing Powerco's CPP proposal.
618. We also disagree with Contact Energy's view that *ex-post* reporting does not serve the purposes of Part. 4. We disagree with this view for the following reasons:
- 618.1 Some submitters have indicated that we should do more to hold regulated parties to account for historical performance, and we agree that regulated parties need to justify, and to be held account, for their previous investment decisions;
- 618.2 Stakeholders need to know how their money is being spent, on what activities and how this has delivered benefit for them;
- 618.3 An *ex-post* reporting system provides a useful indicator of a company's historical performance and that also serves as an indicator of its likelihood of delivering future investment proposals. This is helpful in determining whether we have the correct regulatory settings;
- 618.4 An *ex-post* reporting system provides an indication of a company's ability to accurately forecast its future expenditure requirements; and
- 618.5 We disagree that this results in significant additional costs for regulated companies. In our view companies should already have much of this data and information to hand if they are to effectively and efficiently manage their businesses, and *ex-post* reporting simply requires them to present this in an understandable way.

¹⁸⁴ https://www.ofgem.gov.uk/system/files/docs/2017/12/riio-ed1_annual_report_2016-17.pdf and <https://www.westernpower.co.uk/About-us/Stakeholder-information/Performance-reporting-RIIO-ED1.aspx>

619. We consider accountability for ensuring delivery of Powerco's CPP proposals is best achieved through a combination of the following:

619.1 CPP Annual Delivery Report

619.2 Annual stakeholder events

619.3 Annual technical meetings with the Commission.

The CPP Annual Delivery Report

620. The CPP Annual Delivery Report should be a stakeholder facing document that provides an easy to understand, annual update on Powerco's progress against the key commitments made in its CPP proposal. There are already similar requirements placed upon EDBs in other overseas jurisdictions.¹⁸⁵ It is very important that Powerco demonstrates how it is delivering the investment, improvements in performance and customer value it says it needs funding for in its CPP proposal, and which forms the basis for the Commission to approve allowable revenues over the CPP period 2018-2023.

621. The CPP Annual Delivery Report should be relatively short in length (10-20 pages maximum) and should be as interactive as possible through the use of infographics and other media where appropriate. The key purpose of the CPP Annual Delivery Report should be to clearly and easily demonstrate Powerco's progress in delivering its CPP commitments to a broad stakeholder audience.

622. Some of the information provided in the CPP Annual Delivery Report may already be recorded and reported on as part of the Commission's information disclosure requirements under Part 4 of the Act.¹⁸⁶ Powerco will still need to fully comply with information disclosure requirements during the CPP period, but some of this information will also be included in the CPP Annual Delivery Report for ease of reference by stakeholders.

623. We envisage the CPP Annual Delivery Report will provide sufficient information so stakeholders can assess how Powerco is progressing in delivering the key components of its CPP proposal and the commitments it has previously provided to Commissioners. This should include a combination of objective volumetric and more subjective qualitative measures that clearly demonstrate how Powerco, through the CPP regime, is delivering for customers.

¹⁸⁵ For instance, EDBs in the UK are required to provide annual reports that detail their progress against the commitments made under the RII0-ED1 price control arrangements. An example can be found at <https://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Performance-reporting-RIIO-ED1/Summary-Report-Business-Plan-Commitments-Report-20.aspx>

¹⁸⁶ <http://www.comcom.govt.nz/regulated-industries/electricity/information-disclosure-requirements-for-distributors/>

624. We consider the volumetric measures should consist of the following:

- Financial performance of each category of Powerco's CPP proposal – renewals capex (split into CPP sub-categories), growth and security capex (split into major, minor and reliability), other network capex, non-network capex (distinguish between ICT and facilities capex), network opex (corrective, preventative, reactive, vegetation management & SONS), non-network opex (corporate, ICT, facilities & other)
- Conductor Replacement – kms replaced by zone, unit cost per km replaced
- Overhead Structures – units replaced by type, unit cost per unit replaced per type
- Transformer Replacement – units replaced, unit cost per unit replaced
- Other Renewal Programmes – units completed, unit cost per unit completed
- Major Projects – description on progress of all major projects in the CPP period
- Minor Projects – description on progress of all minor projects in the CPP period
- SAIDI/SAIFI planned and unplanned – by region
- Average length of outages planned and unplanned – across voltage categories
- Worst served customers performance – including numbers of planned/unplanned outages, length of outages and restoration times
- Corrective/Preventative/Reactive backlogs – number under each category, progress on clearing backlogs
- Vegetation Management – km inspected, km cleared, rates per km
- ERP – progress of ERP against forecast
- FTEs – how many have been recruited against CPP proposal forecast and in what areas

625. We consider the qualitative measures should include the following:

- Introduction from Board/CEO – explains key achievements in delivering CPP commitments, why progress is as forecast, ahead or behind schedule
- What Powerco is doing to ensure CPP outcomes are achieved and rolled-out as efficiently as possible

- Innovation/Network Evolution Initiatives – projects Powerco is assessing/working on, how it is working with industry, what has it learnt, and areas Powerco sees innovation becoming more important in future
- Data Improvement/Information Quality Programmes – what programmes/initiatives have been undertaken, what has been learnt, how is this benefitting customers
- Asset Health Framework – progress in attaining ISO55000 by the end of the CPP period, development of an asset management framework that allows for condition based assessments to be linked to expenditure need and reliability
- Streamlined Works Delivery – achievements made by Powerco in this space and how this benefits customers. Should identify and discuss how this aligns to improving unit rates and any improvements this has enabled
- ERP progress against overall programme milestones – descriptive narrative on progress to date, is project still on track for successful delivery and when can customers start to see the benefits of the programme
- Stakeholder Engagement Initiatives – including what specifically Powerco is doing to actively inform customers of the CPP work programme, manage customer notifications of increased planned outages, initiatives around worst served customers, vulnerable customers, providing quicker connections (quotations and physical connections), charity work
- Safety and hazard control initiatives – both internally and for the public, specifically comment on how overall resilience of network is improving, how is overall safety of network improving
- Environment – oil losses from all sources but focus on cables and transformers, kms of undergrounded lines/cables, any work/initiatives around reducing network losses
- Customer satisfaction – response times to customer queries/complaints, percentage of customer complaints resolved within 1 day, percentage of customer complaints resolved within 1 month, work with Utility Disputes Limited

626. Since the release of our Issues Paper and Draft Decision, we held discussions with Powerco to further develop the content of a CPP Annual Delivery Report. Powerco has indicated to us that it is committed to ensuring transparency around the delivery of its CPP programme, and with a view to maximising future benefits for customers and minimising regulatory costs. Furthermore, we consider the requirements of the CPP Annual Delivery Report will also assist Powerco in better understanding the key drivers of its business through the continued monitoring of key deliverables that stakeholders value.

Annual stakeholder events

627. It is important for Powerco to make its stakeholders aware of the existence of the CPP Annual Delivery Report, how Powerco is keeping to its CPP commitments and for stakeholders to have a say on whether this is meeting their needs as customers of Powerco.
628. To achieve this, we consider Powerco should convene an annual stakeholder event in each of its Eastern and Western regions, in each year of the CPP, to formally present its CPP Annual Delivery Report. This will provide customers and wider stakeholders with the opportunity to question Powerco on the progress of its CPP works programme.
629. We consider a combination of annual stakeholder events, and prominently locating the CPP Annual Delivery Report on Powerco's website, will ensure customers are well informed of Powerco's progress against its CPP commitments.
630. Powerco should ensure its CPP Annual Delivery Report is readily available on its corporate website, and is located where it is easy for stakeholders to find. We would suggest this should be readily accessible by stakeholders with no more than three clicks from Powerco's homepage, with appropriate signposting making it clear where this can be found.

Annual technical meetings with the Commission

631. Through our current interactions with the industry, we are becoming more proactive in understanding the performance of EDBs across New Zealand and holding them to account where there are indications that current practices can be improved.¹⁸⁷
632. While we expect these interactions to continue, an annual 'technical' meeting with Powerco staff throughout the CPP period will enable us to specifically understand the detail of how it is performing under the CPP. We consider this will be important in identifying any potential issues in CPP delivery as they arise, and/or trends across the sector that may warrant further consideration in a broader Part 4 context.
633. It will be important for us to engage directly with Powerco on all aspects of delivering its CPP commitments, especially if actual progress significantly deviates from Powerco's planned investment program that could have a material impact on customers. We will hold an annual technical meeting in each year of the CPP for this purpose, and these meetings will also allow us to ensure that ongoing stakeholder feedback has been considered by Powerco in improving its performance in future years.

¹⁸⁷ <http://www.comcom.govt.nz/regulated-industries/electricity/performance-analysis-and-data-for-distributors/>

Attachment L Our view of Powerco's asset management practices

Purpose of this attachment

634. This attachment outlines our views on Powerco's assessment management practices that have underpinned its CPP application and EDB asset management practices in general.
635. This attachment does not directly affect Powerco's CPP price-quality path, but we consider it is useful context for the work Powerco is planning to undertake to develop a robust and well-functioning asset criticality management framework. For these reasons, this chapter may also be useful for other CPP applicants and EDBs more generally.

Our focus on EDB asset management practices

636. We published an open letter to the industry on 9 November 2017 to set out our 2017/18 priorities in the electricity sector. That letter includes some shorter term priorities and also some 'enduring' priorities.¹⁸⁸
637. One of the key priorities in 2017/18 and beyond will be to better understand EDB network performance and how this links to EDB asset management practices. We consider that key sector issues include EDB's ability to:
- 637.1 manage their assets effectively;
 - 637.2 maintain resilient networks; and
 - 637.3 deliver the above in a changing environment.
638. Good asset management is key to ensuring distributors improve efficiency and provide services at a price and service quality expected by consumers. Effective asset managers should be focussing on:
- 638.1 the health and criticality of their assets;
 - 638.2 appropriate levels of resilience; and
 - 638.3 investment 'sufficiency' to ensure they are investing in assets at a prudent level.

¹⁸⁸ Our open letter can be found at: <http://comcom.govt.nz/our-priorities-in-electricity-distribution>

639. Specifically we consider prudent asset managers should be asking the following questions:
- 639.1 Do they understand the condition of assets, and do they have robust, systematic processes in place for collecting and managing asset-related data?
 - 639.2 Do they understand the most critical assets affecting network operation from both a reliability and safety perspective, taking into account the probability and consequence of asset failure?
 - 639.3 Do they understand the link between planned expenditure and consumer reliability outcomes?
 - 639.4 Do they understand the full range of risks they are exposed to, including from High Impact Low Probability (HILP) events, and have an effective plan in place to mitigate for those risks?

Asset health and asset criticality

640. In our Issues Paper we highlighted that we considered that an effective EDB network asset management framework should contain two fundamental elements, namely:¹⁸⁹
- 640.1 an effective framework, based on industry accepted practices, to systematically judge asset health and effective remaining asset life; and
 - 640.2 an understanding of the criticality of that asset, not only in terms of its safety impact, but its impact on consumer reliability and outage costs.
641. The Verifier concluded in its verification report that not all of Powerco's practices regarding asset health were reasonable and may lead to over-forecasting of expenditure.¹⁹⁰
642. The Verifier was particularly critical of Powerco's approach to modelling distribution conductor replacement and the use of the target fault rate to underpin expenditure decisions.

¹⁸⁹ Available at <http://comcom.govt.nz/dmsdocument/15687>

¹⁹⁰ Available at <http://www.comcom.govt.nz/dmsdocument/15550>

643. We tested this issue fully with Powerco and, after further information was provided, we were persuaded that its approach was reasonable, because:
- 643.1 Powerco fault data between 2008 and 2012 clearly demonstrated that it had a type issue problem with at least four conductor types;¹⁹¹
 - 643.2 while we initially asked Powerco to set the target fault rate at the industry median fault rate for distribution conductor, industry data was not readily available;
 - 643.3 the target fault rate in the Powerco analysis was set at an expected fault rate of non-type issue conductor across Powerco's entire distribution conductor fleet; which is approximately 20% of New Zealand's installed distribution conductor; and
 - 643.4 the 2008-2012 data set that underpins the distribution conductor replacement model uses about 75,000 km-years of distribution conductor operational data and was used as a proxy for distribution conductor expected fault rate.
644. The modelling approach taken by Powerco to determine replacement of distribution conductor is a "top-down" fleet wide approach (and not a bottom-up observed asset condition based approach). Powerco uses age related deterioration modelling and observed fault rates to identify conductor sections for replacement, but we still consider that, in the circumstances, it is a reasonable approach to forecast replacement of the type issue conductor problem.
645. Overhead conductor condition is difficult to monitor with any certainty, so we consider that Powerco's top-down fleet wide approach is reasonable in this case.
646. The Verifier also commented that some of Powerco's pole inspection and defecting practices may lead to over-forecasting; but apart from these two issues the Verifier had no other comment about Powerco's asset health processes across the asset fleet.
647. In the Issues Paper we explained that asset health was only part of the decision making process to replace assets before they fail.¹⁹²

The replacement decision should also be made with an understanding of asset criticality in mind, including safety considerations, in order that consumers obtain the best value for money, and to link asset replacement decisions to reliability outcomes.

¹⁹¹ A type issue asset problem is one where a manufacturing process or installation practice has had the effect of reducing the expected life of that asset.

¹⁹² "Invitation to have your say on Powerco's proposal to change its prices and quality standards – Issues to explore and consider", Commerce Commission, 18 August 2017, Chapter 4, pages 28-31.

648. In its proposal Powerco stated that it planned to further develop an asset criticality framework as part of its CPP stating that:

We will further expand and embed our existing asset criticality framework. The goal is to include criticality assessments in all asset investment planning decisions – Capex and maintenance. It will also support our risk management initiative.

649. However the Verifier concluded that Powerco considered its asset criticality framework would be focussed on taking a risk based approach to prioritising asset replacement based on safety consequence.¹⁹³

650. We consider safety consequence is just one consideration of an asset criticality framework, and that a well-functioning asset criticality framework should yield information about asset outage impact on consumers and how to prioritise expenditure, amongst other things.

651. In the Issues Paper we were keen to generally test the role of asset criticality in asset management decision making frameworks, and sought submissions on:

651.1 stakeholders' experiences with asset health and criticality analysis, and how practices have been implemented and integrated into industry asset management processes; and

651.2 views on Powerco's intention to expand and embed its asset criticality framework, during the CPP period, which will apply a risk based approach to prioritising asset replacements based on safety consequence. We sought views on whether this work should be prioritised during the period.

652. Some submitters felt that an asset criticality framework was necessary to understand investment prioritisation. In its submission ERANZ stated that a good prioritisation framework informed investment deferral decisions to retain optionality.¹⁹⁴

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.

653. Fonterra also made the link between asset criticality and prioritisation stating that:¹⁹⁵

Powerco should prioritise expanding and embedding its asset criticality framework to ensure that it minimises the risk of over investment. This assessment must be undertaken alongside the asset health assessments to ensure that the correct investments are made and prioritised appropriately.

¹⁹³ "Final Verification report for Powerco" Farrier Swier, page 48 available at <http://www.comcom.govt.nz/dmsdocument/15550>

¹⁹⁴ Electricity Retailers Association New Zealand (**ERANZ**) Issues paper submission received on 22 September 2017

¹⁹⁵ Response to Powerco customised price path application, Fonterra, 22 September 2017.

654. We agree with these views and consider that a well-functioning EDB asset criticality framework is integral to good asset management to ensure consumers get value for money. Asset criticality is not just about safety, although that is a key consideration.
655. Asset criticality is also about understanding the effect that individual assets have on the consumer experience if there is an outage, and how long it takes to return assets to service following that outage. This understanding could be awareness of SAIDI and SAIFI outcomes, or business costs for larger consumers that may not necessarily be reflected in SAIDI measures.
656. Ideally we consider that a good asset criticality framework for key network assets should be able to inform asset managers and decision makers with the following information:
- 656.1 SAIDI and SAIFI impact of the asset outage – ideally each key asset will have an asset health measure which will affect that asset outage probability with the outcome that SAIDI and SAIFI can be expressed probabilistically;
 - 656.2 kWh or MWh impact of the asset outage – which means that some understanding of the kW or MW outage magnitude and return to service durations are needed for each of the key assets; and
 - 656.3 The cost of the asset outage – which includes the consumer outage cost using VoLL,¹⁹⁶ and can include the potential replacement cost of the asset, and the environmental cost of asset failure (e.g., such oil leakage if there was a major transformer failure).¹⁹⁷
657. Understanding the potential consumer cost of an asset outage, viewed from an asset health and outage probability viewpoint, will enable an EDB to judge asset prioritisation not just within each asset class, but across the entire fleet. The use of outage cost could allow the fleet expenditure program to be normalised between different asset types, with the normalisation being the asset outage cost itself.

¹⁹⁶ VoLL – the Value of Lost Load

¹⁹⁷ These are some examples of outage cost considerations in the OFGEM DNO Common Network Asset Indices Methodology – Health and Criticality, August 2016 available at <https://www.ofgem.gov.uk/publications-and-updates/decision-dno-common-network-asset-indices-methodology>

658. In its response to our Issues Paper, Powerco has increased its emphasis on asset criticality and linked this to asset replacement requirements:

We agree with the Commission's view that being able to correctly identify the most critical assets for replacement is important¹⁹⁸

As noted in our Proposal, we have developed a criticality framework that we are currently embedding within our systems and processes. The framework takes into account the potential impact on consumers, public safety, environment and financial outcomes. We agree with the Commission that an asset criticality framework should cover more than just safety related aspects.¹⁹⁹

659. While it is not ideal that Powerco are developing their asset criticality modelling during the CPP and not prior to the CPP, we have seen sufficient evidence to convince us that there are many assets that require renewal and replacement even without a criticality tool informing decisions (such as the overhead distribution conductor with type issues).
660. It is hoped that with a well-functioning and robust asset criticality management framework, Powerco will be able to start replacing its more critical assets first. We will monitor Powerco's progress in developing its asset criticality framework over the CPP period and expect other EDBs to do likewise.

¹⁹⁸ Response to Commerce Commission 'Issues to explore and consider' consultation paper, Powerco, 22 September 2017, para 54, page 13.

¹⁹⁹ Response to Commerce Commission 'Issues to explore and consider' consultation paper, Powerco, 22 September 2017; para 57, page 13.