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Default price-quality paths for electricity distribution businesses from 1 April 2020

Issues paper

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Associated documents

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28 November 2014	[2014] NZCC 33	Electricity Distribution Services Default Price-Quality Path Determination 2015
9 November 2017	-	Our priorities for the electricity distribution sector for 2017/18 and beyond
14 June 2018	ISBN 978-1-869456-42-9	Default price-quality paths for electricity distribution businesses from 1 April 2020 – Proposed Process
23 August 2018	ISBN 978-1-869456-53-5	Proposed amendments to Electricity Distribution Services Input Methodologies Determination in relation to accelerated depreciation – Draft reasons paper
6 September 2018	-	Default price-quality paths for electricity distribution businesses from 1 April 2020 – Process Update Paper
8 November 2018	[2018] NZCC 19	Amendment to Electricity Distribution Services Input Methodologies Determination in relation to accelerated depreciation

Commerce Commission
Wellington, New Zealand

Contents

Executive Summary

Purpose of this paper

X1 This paper:

X1.1 explains our framework for considering changes when resetting the default price-quality path (DPP) for electricity distribution businesses (EDBs) for the third regulatory period beginning 1 April 2020 (DPP3); and

X1.2 consults on potential issues we have identified in advance of the DPP3 draft decision.

X2 Submissions on this paper are due 20 December 2018, and cross-submissions are due 31 January 2019.

EDBs regulated under price-quality regulation

X3 We are required to reset the DPPs that currently apply to EDBs that are subject to price-quality regulation under Part 4 of the Commerce Act 1986 (the Act). Part 4 provides for regulation in markets in which there is little or no competition, and little or no likelihood of a substantial increase in competition.

X4 We last reset the current EDB DPP in November 2014. The DPP specifies the price path and quality standards that EDBs must comply with during the current regulatory period (1 April 2015 to 31 March 2020).

X5 From 1 April 2020, 15 electricity distributors will be subject to new requirements set out in the amended DPP determination. The EDBs currently subject to price-quality regulation, both the DPP and customised price-quality paths (CPPs), are set out below.

Table X1 EDBs currently subject to price-quality regulation

EDBs subject to the DPP			
Alpine Energy	Aurora Energy	Centralines	Eastland Network
EA Networks	Electricity Invercargill	Horizon Energy	The Lines Company
Network Tasman	Nelson Electricity	OtagoNet JV	Top Energy
Unison Networks	Vector Lines		
EDBs subject to a CPP			
Orion (ends 2019)	Powerco (ends 2023)	Wellington Electricity (ends 2021)	

Decision making framework

X6 In making decisions about DPP3, we propose applying a decision making framework that focuses on retaining approaches from the current DPP (DPP2), unless changes would:

X6.1 better promote the purpose of Part 4;[1]

X6.2 better promote the purpose of default/customised price-quality path regulation;[2]

X6.3 better promote incentives for EDBs to invest in energy efficiency and demand-side management, and to reduce energy losses (or better avoid disincentives for the same);[3] or

X6.4 reduce unnecessary complexity and compliance costs.

Our approach to DPP3

X7 The core components of a DPP that we need to make decisions about remain largely unchanged from DPP2. These components are:

X7.1 forecasts of operating expenditure;

X7.2 forecasts of capital expenditure;

X7.3 quality standards and incentives;

X7.4 incentives to improve efficiency; and

X7.5 incentives for energy efficiency, demand-side management, and reduction of energy losses.

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1 Commerce Act 1986, section 52A.

2 Commerce Act 1986, section 53K.

3 Commerce Act 1986, section 54Q.

X8 Additionally, there are two components of the DPP which have changed significantly as a result of amendments we made to the input methodologies (IMs) in 2016. These are:

X8.1 the move from a price cap to a revenue cap;[4] and

X8.2 changes to the treatment of depreciation which allow EDBs to apply for a discretionary shortening of asset lives (accelerated depreciation).

Forecasts of operating expenditure

X9 Our emerging view is that we should retain the general approach used to forecast operating expenditure from the 2015 DPP reset. This involves:

X9.1 taking a base level of operating expenditure;

X9.2 carrying this forward by certain trend factors; and

X9.3 applying any known step changes (this is commonly referred to as a 'step and trend' approach).

X10 Within this step and trend approach we are proposing, at a high level, to:

X10.1 use actual operating expenditure for the 2019 disclosure year as the base level of operating expenditure;

X10.2 retain the general econometric approach to forecasting operating expenditure growth due to network scale growth;

X10.3 explore further disaggregation of the operating expenditure forecast from network and non-network to the operating expenditure categories disclosed in information disclosure, and we will consider what the drivers for each category might be;

X10.4 use an operating expenditure partial productivity factor of 0% (however, we are seeking any reasons and evidence for deviating from this assumption); and

X10.5 retain a weighted average of the all-industries labour cost and producer price indices to calculate nominal operating expenditure over DPP3.

X11 We are also seeking reasons and evidence for any likely step changes applicable to the electricity distribution industry between 2019 and 2025.

[4] The change to a revenue cap also removes the need for us to forecast demand growth (or constant-price revenue growth), which is why this paper does not address demand forecasts in any detail.

Forecasts of capital expenditure

X12 We consider that the approach we took in DPP2, where we used EDB Asset Management Plans (AMPs) as the starting point for our forecasts, remains appropriate. Consistent with this, we are considering using:

X12.1 the 2018 AMP as the basis of the draft decision and the 2019 AMP update as the basis of the updated draft and final decision; and

X12.2 breaking capital expenditure down into network and non-network capital expenditure.

X13 However, we do not consider it appropriate to use EDB AMPs without some form of limit or scrutiny. This is in part due to the incentives EDBs face to over-forecast capital expenditure needs.

X14 The options for scrutiny we are considering fall into four broad categories. From least to most scrutiny, these options are:

X14.1 capping forecasts based on historical expenditure levels;

X14.2 assessing AMP capital expenditure forecasts against other material disclosed in the AMPs;

X14.3 assessing AMP capital expenditure forecasts against independently derived, external drivers; and

X14.4 qualitative analysis of AMPs and other information where expenditure exceeds reasonable limits.

X15 We are interested in views about which of these options is most appropriate considering the long-term benefit of consumers and the relatively low-cost framework of DPPs.

Other considerations

X16 We are also seeking views on other aspects of how we forecast capital expenditure. These include:

X16.1 How any of the metrics we use when assessing AMP forecasts could be used to provide accountability during the regulatory period as part of a 'delivery report'.

X16.2 Ways in which other independent forecasts or methods of scrutinising EDB capital expenditure could be incorporated into the DPP3 reset process.

Cost escalators for capex

X17 We would assess AMP forecasts of apply capital expenditure caps on a constant-price basis. However, the financial model depends on forecasts set on a nominal basis. Therefore, we need to determine a cost escalator to do this.

X18 The options we are considering are:

X18.1 retaining the use of the all-industries capital good price index (CGPI) forecasts, either from NZIER or another provider;

X18.2 using an industry- or region-specific index; or

X18.3 using the consumer price index (CPI).

Quality standards and incentives

X19 We are considering whether to retain both the DPP2 reliability standards and incentive scheme for DPP3. Within this, we are considering whether to amend certain aspects of:

X19.1 setting the reliability standard(s);

X19.2 setting the reliability incentive scheme;

X19.3 normalising SAIDI and SAIFI; and

X19.4 including additional reliability metrics.

Quality standards relating to reliability

X20 We invite views as to whether planned interruptions should be assigned a lower weighting or be treated as a separate quality standard.

X21 We are considering whether the buffer between the SAIDI and SAIFI limits and the SAIDI and SAIFI historical average should change.

X22 We considering the appropriateness of updating the reference period to the most recent 10 years, and we are open to suggestions as to the best means of doing this. We are also considering removing the most extreme years from the reference dataset.

X23 We are considering alternative approaches to determining a quality standard contravention.

X24 We are considering additional reporting requirements for DPP3 when an EDB contravenes its quality standard. This would assist our understanding of the reasons for the contravention, the state of its network, and the responses it has taken to address the worsening reliability performance.

Quality Incentive scheme

X25 We consider that a cost-quality trade-off between distributors and consumers is still relevant. However, we are seeking views on the value of the revenue-linked incentive scheme for SAIDI and SAIFI.

X26 We are seeking views on raising the total revenue at risk from 1% to up to 5%.

X27 We are seeking views on widening the SAIDI and SAIFI cap and collar band from one standard deviation to up to two standard deviations from the historical average. We also consider that the caps applicable to the incentive scheme should be consistent with the limits applicable to the quality standard.

X28 We are considering the option of explicitly setting the incentive rate, for example, with reference to the value of lost load (VoLL).

X29 We are considering whether to include notifications of planned interruptions and new connection measures within the quality incentive scheme.

Normalisation

X30 We are considering whether to continue using the 23rd highest daily unplanned SAIDI and SAIFI, assuming a 10-year reference period, for the boundary values.

X31 If feasible, we will consider identifying an unplanned major event day based on a rolling 24-hour period. We will also consider the practicality of aggregating multi-day events attributable to extreme weather events and disasters.

X32 We invite views on what actions should be taken when a major event day is triggered. Our starting point is that we should retain the replacement of any major SAIDI or SAIFI event day with the applicable boundary value. This ensures there is a limit on how much risk an EDB is exposed to during a major event without removing it completely.

Other measures of quality beyond reliability

X33 In addition to revisiting our approach to reliability, we are also assessing whether there are other measures of quality which might better reflect customer demands. This could encompass matters such as:

X33.1 providing high quality power supply;

X33.2 the time it takes to respond to a power cut;

X33.3 the time taken to answer the telephone;

X33.4 providing information on reasons for and the likely duration and extent of a power cut;

X33.5 processing applications for new connections; and

X33.6 providing sufficient notice of shutdowns.

X34 As part of this work, we are considering the material produced by the Electricity Networks Association Quality of Service Working Group, which we have published alongside this decision.

Incentives to improve efficiency

X35 We are proposing to continue using retention factors for operating expenditure and capital expenditure in order to provide EDBs with incentives to seek efficiency gains over the regulatory period, with the strength of incentives remaining constant over the regulatory period.

Operating expenditure incentive

X36 Our intended approach for DPP3 is to use the incremental rolling incentive scheme (IRIS) mechanism using the DPP3 weighted average cost of capital (WACC) value, so that the EDBs have certainty around the retention factor applied to operating expenditure efficiencies achieved throughout the regulatory period.

Capital expenditure incentive

X37 We are considering whether the reasons for setting the capital expenditure retention factor at 15% in DPP2 remain valid for DPP3. If the reasons are no longer valid, we remain of the view that the retention factors for capital expenditure and operating expenditure should be broadly similar (or there should be a smaller disparity between these incentive rates).

Smoothing operating expenditure incentive amounts

X38 It is possible that 'operating expenditure incentive amounts' could be large enough to cause price shocks to consumers, so we are considering smoothing the annual operating expenditure incentive amounts during the regulatory period to reduce the likelihood of price shocks from individual amounts.

X39 The smoothed amounts would apply for each of the last four years of the regulatory period with a nil amount for the first year. The present value of the smoothed amounts would be set equal to the present value of the operating expenditure incentive amount'. The smoothing mechanism could be similar to the smoothing mechanism used for the capital expenditure incentive in the IMs.

X40 We welcome submissions on smoothing the operating expenditure incentive amounts in order to avoid price shocks to consumers and revenue shocks for EDBs.

Incentives for energy efficiency, demand-side management, and reduction of energy losses

X41 In the sections below, we identify a number of issues relating to incentives for energy efficiency, demand-side management, and reduction in energy losses. We are interested in views on these issues.

Energy efficiency and demand-side management

X42 Under a revenue cap regime such as that which will apply during EDB DPP3, the energy efficiency and demand-side management incentive scheme that we introduced for the current EDB DPP is not required. In our 2016 IM review, we gave effect to this by removing the energy efficiency and demand-side management incentive allowance as a recoverable cost. In our IM review reasons paper, we noted that submissions supported the removal of the scheme if we moved to a revenue cap.[5]

X43 Although the move to a revenue cap form of control will remove the disincentive for EDBs to undertake energy efficiency and demand-side management initiatives, we are still required to positively promote such initiatives.

X44 One area where we are considering strengthening incentives for demand-side management is the retention factors that apply to capital expenditure and operating expenditure. As discussed in Attachment E, we are proposing to revisit the capital expenditure retention factor to see whether it should be increased towards the operating expenditure retention factor.

X45 As we noted in 2014, the retention factors for operating expenditure and capital expenditure can influence decisions by EDBs on energy efficiency and demand-side management activities.

X46 We note that demand-side management incentive schemes have been introduced internationally in similar regulatory regimes, although they are still at an early stage. For example, the Australian Energy Regulator (AER) introduced a demand management incentive scheme in December 2017. The effectiveness of these schemes is not yet known. This may support taking an incremental approach for EDB DPP3, based on our review of the retention factors that will apply during DPP3.

X47 We are interested in views on whether the incentives for EDBs to promote energy efficiency and demand-side management initiatives should be further strengthened beyond our reconsideration of retention factors.

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[5] Commerce Commission "Input methodologies review decisions – Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower" (20 December 2016), para 90.

Reduction of energy losses

X48 Although it is not possible to eliminate line losses, we are interested in exploring options for incentivising the EDBs to reduce distribution line losses.

X49 One option might be to consider moving towards a 'cap and collar' type of mechanism to incentivise EDBs to factor energy losses into their decisions. Under such a mechanism, an EDB is rewarded for reducing line losses below a target level and penalised where line losses increase above the target. However, if such a mechanism were to be considered, we would have to be satisfied that this is consistent with section 52A of the Act, in particular having regard to whether consumers are willing to pay for reduced line losses.

X50 Under an incentive scheme, consumers would pay a financial 'reward' to EDBs who reduce line losses below the target level (in the form of a revenue uplift). Consumers would also pay for EDB investments in loss reduction activities as the assets associated with those activities enter the regulatory asset base. These costs to consumers would have to be weighed against the consumer benefits of lower losses.

X51 We are interested in views on whether an explicit mechanism to promote investment in line loss reduction should be considered as part of EDB DPP3, or whether we should instead progress this through summary and analysis of information disclosed by the EDBs (such as through the 2018 AMP review) and targeted new disclosure requirements.

Chapter 1 Introduction

Purpose of this paper

1.1 This paper:

1.1.1 explains our framework for considering changes when resetting the default price-quality path (DPP) for electricity distribution businesses (EDBs) for the third regulatory period beginning 1 April 2020 (DPP3); and

1.1.2 consults on potential issues we have identified in advance of the DPP3 draft decision.

1.2 To achieve this we:

1.2.1 explain our framework for making decisions when resetting the DPP;

1.2.2 set out our priorities for the EDB sector in the context of changes in the electricity industry and regulatory environment;

1.2.3 explain the core components of how DPP regulation works and how it fits into the broader regime under Part 4 of the Commerce Act 1986 (the Act);

1.2.4 set out and analyse potential issues specific to the DPP3 reset and where possible identify options for resolving them; and

1.2.5 explain the DPP3 process, including further opportunities to participate in the reset process.

1.3 Our reasons for doing this are:

1.3.1 to encourage and facilitate submissions that will assist us in developing the DPP further, with an emphasis on identifying any additional issues or options which we have not identified;

1.3.2 for stakeholders to have clear expectations about how the DPP works, and what it will cover;

1.3.3 for stakeholders to be able to decide the extent to which they want to be involved in the DPP process; and

1.3.4 for all stakeholders to understand the basis on which we intend to make decisions, and to have confidence that we are promoting the purpose of Part 4 in doing so.

1.4 We welcome your views on the matters raised in this paper within the timeframes set out below:

1.4.1 submissions by 5pm on Thursday 20 December 2018; and

1.4.2 cross-submissions by 5pm on Thursday 31 January 2019.

1.5 More details on how you can provide your views are set out in Chapter 6.

Structure of this paper

1.6 The chapters of this paper broadly explain our approach to considering changes to the DPP and summarise the issues we are addressing within each component of the DPP. The attachments then provide greater detail on the issues we are considering, the options we have for addressing them, and the analysis which will inform our decisions.

1.7 Details of what each chapter and attachment addresses are set out in Table 1.1 below.

Table 1.1 Structure of this paper

Section	Title	Description
Chapter 1	Introduction	Sets out the purpose of this paper, what it covers, and how it is structured.
Chapter 2	How we intend to make decisions for DPP3	Describes the high-level framework we propose to apply in setting DPP3, including: Part 4 statutory requirements and objectives, and our decision making framework.
Chapter 3	Context and priorities for DPP3	Sets out our view of the context in which we are setting DPP3, our priorities for the EDB sector, and how these priorities apply to the DPP3 reset.
Chapter 4	Our approach to regulating price and quality	Provides a high-level overview of the core components of the DPP and the decisions we will need to make on each of them.
Chapter 5	Specific issues in setting the DPp3	Discusses issues that are specific to DPP3 and that may need to be addressed across the different components of the DPP. This includes: implementing the revenue cap, accelerated depreciation, updates to the financial model, reopeners, and interactions between CPPs and the DPP.
Chapter 6	Future process and how you can provide your views	Explains the next steps in the DPP process, how and when parties should make submissions, and other opportunities to provide your views.

Section	Title	Description
Attachment A	Forecasting operating expenditure	Summarises how we forecast operating expenditure in DPP2, and identifies potential issues relating to operating expenditure forecasts in DPP3.
Attachment B	Forecasting capital expenditure	Explains what we are considering with respect to forecasting EDB capital expenditure for the DPP3 period.
Attachment C	Reliability standards and incentives	Sets out our preliminary views on quality of service measures other than the existing measures of network reliability.
Attachment D	Other measures of quality of service	Discusses options for introducing other measures, standards or incentives for quality of service. Includes discussion of accountability reporting and/or output measures.
Attachment E	Incentives to improve efficiency	Sets out the issues in relation to the proposed expenditure incentives which will apply to EDBs for DPP3, specifically proposed changes to the IRIS.
Attachment F	Energy efficiency, demand-side management, reduction of losses	Discusses the relevance of section 54Q of the Act to the way we set the DPP, to the existing incentives we have created, and options for expanding or enhancing them.
Attachment G	Implementing changes from the IM review	Explains how we propose to implement IM amendments made in our 2016 IM review. This includes the move to the revenue cap, the accelerated depreciation option, and changes to the WACC and TCSD methodologies.
Attachment H	Proposed changes to the financial model	Describes the changes to the DPP2 financial model to create the first draft of the financial model which may be used for the EDB DPP3.
Attachment I	Statutory requirements for default price-quality path resets	Outlines how the provisions of Part 4 apply to the resetting of the DPP.

Material accompanying this paper

1.8 Alongside this paper we have published:

1.8.1 an initial version of the financial model that we will use to set DPP3 (updated as described in Attachment H);

1.8.2 the text of the information gathering (section 53ZD) request for quality of service data issued to price-quality regulated EDBs;

1.8.3 a notice of intention to begin work on an IM amendment to deal with potential price volatility; and

1.8.4 the slides used in our 5 November 2018 DPP knowledge sharing session.

1.9 We have also published two independent reports prepared by the Electricity Networks Association (ENA) and presented to the Commission:

1.9.1 an initial report from the ENA quality of service working group into quality of service regulation; and

1.9.2 a report by The Brattle Group (on behalf of the ENA) on incentive mechanisms.[6]

[6] These reports have been prepared independently of the Commission, and do not reflect the Commission's views. Given the timing of the publication of these reports, we have not had time to fully consider them in this paper.

Chapter 2 How we intend to make decisions for DPP3

Purpose of this chapter

2.1 This chapter describes the high-level framework we propose to apply in setting DPP3. To do this, this chapter explains:

2.1.1 the requirements for setting DPPs under Part 4 of the Act;

2.1.2 the overarching objectives in the Act that are relevant when setting a DPP; and

2.1.3 our proposed framework for making decisions on DPP3.

Requirements for setting DPPs under Part 4

2.2 Part 4 provides for the regulation of the price and quality of goods or services in markets where there is little or no competition, and little or no likelihood of a substantial increase in competition.[7] For EDBs, it sets out that regulation should apply in two forms:

2.2.1 Information disclosure regulation, under which regulated suppliers are required to publicly disclose information relevant to their performance.[8]

2.2.2 Default/customised price-quality regulation, under which price-quality paths set the maximum average price or total allowable revenue that the regulated supplier can charge. They also set standards for the quality of the services that each regulated supplier must meet. This ensures that businesses do not have incentives to reduce quality to maximise profits under their price-quality path.[9]

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7 Commerce Act 1986, section 52.

8 Commerce Act 1986, sections 52B and 54F. As per section 54, information disclosure applies to all EDBs subject to Part 4.

9 Commerce Act 1986, sections 52B and 54G. As per section 54F, default/customised price-quality regulation applies only to EDBs who do not meet the consumer-owned criteria set out in section 54D. EDBs subject to a default price-quality path have the option of applying for a customised price-quality path to better meet their particular circumstances (section 53Q).

2.3 To set a DPP, Part 4 specifies a number of requirements and limitations which we must follow:

2.3.1 the scope and application of the regulatory rules and processes, referred to as input methodologies (IMs), which we are required to set for Part 4 regulation;

2.3.2 what the determinations used to set DPPs must specify;

2.3.3 the content and timing of price-quality paths;

2.3.4 requirements when resetting DPPs; and

2.3.5 how we must have regard to incentives and the avoidance of disincentives for energy efficiency, demand-side management, and the reduction of losses.

2.4 We must also consider the Part 4 purpose and what default/customised price-quality regulation is intended to achieve when making our decisions. We discuss these objectives and how we are required to use them to set DPPs in the next section of this chapter.

2.5 The statutory requirements for setting DPPs under Part 4 are described in more detail in Attachment I.

Overarching objectives in the Act used when setting a DPP

Purpose of Part 4

2.6 Section 52A of the Act sets out the purpose of Part 4 regulation:

> (1) The purpose of this Part 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
>
> (d) are limited in their ability to extract excessive profits.

2.7 The key component of this statement is that we are to promote the long-term benefit of consumers, and this is our primary concern in achieving the purpose of Part 4. Section 52A guides us that this is to be achieved by promoting outcomes that are consistent with outcomes produced by competitive markets, and gives us four objectives to pursue that are considered consistent with those of competitive markets.

2.8 In practice, when setting a DPP, it is important to note:

2.8.1 We do not focus on replicating all the potential outcomes or mechanisms of workably competitive markets; we focus on promoting the section 52A outcomes.

2.8.2 None of the objectives listed section 52A(a) to (d) are more important than the others, and they are not separate and distinct from each other, nor from section 52A(1) as a whole. Rather, we must balance the section 52A(1)(a) to (d) outcomes, and exercise judgement in doing so. [10]

2.8.3 When exercising this judgement we are guided by what best promotes the long-term benefit of consumers.[11]

Purpose of default/customised price-quality regulation

2.9 Section 53K of the Act sets out the purpose of default/customised price-quality regulation:

> The purpose of default/customised price-quality regulation is to provide a relatively low-cost way of setting price-quality paths for suppliers of regulated goods or services, while allowing the opportunity for individual regulated suppliers to have alternative price-quality paths that better meet their particular circumstances.

2.10 We have taken this purpose to mean that:

2.10.1 DPPs are to be set in a relatively low-cost way, and are not intended to meet all the circumstances that an EDB may face; and

2.10.2 CPPs are intended to be tailored to meet the particular circumstances of an individual EDB.

2.11 To meet the relatively low-cost purpose of DPP regulation, we must take into account the efficiency, complexity, and costs of the DPP regime as a whole when resetting the DPP. What this means in practice will vary over time and between sectors.

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[10] *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, paras 684.

[11] See the discussion of our decision to adopt the 75th percentile for WACC in *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, paras 1391-1492.

2.12 In the DPPs we have set since we determined the IMs,[12] we have developed a combination of low-cost principles including:

2.12.1 applying the same or substantially similar treatment to all suppliers on a DPP;

2.12.2 setting starting prices and quality standards or incentives with reference to historical levels of expenditure and performance;

2.12.3 where possible, using existing information disclosed under ID regulation, including suppliers' own AMP forecasts; and

2.12.4 limiting the circumstances in which we will reopen or amend a DPP during the regulatory period.

Our proposed framework for making decisions on DPP3

2.13 In addition to the section 52A and 53K purpose statements, we intend to use a decision making framework and set of economic principles that we have developed over time to support our decision making under Part 4. These have been consulted on and used as part of prior processes, and help provide consistency and transparency in our decisions.

[12] Electricity Distribution Services Default Price-Quality Path Determination 2015 [2014] NZCC 33; Gas Transmission Services Default Price-Quality Path Determination 2013 [2013] NZCC 5; Gas Distribution Services Default Price-Quality Path Determination 2013 [2013] NZCC 4

Decision making framework for DPP3

2.14 For this reset, we intend to retain approaches from the second EDB DPP (DPP2) where they remain fit for purpose.[13] We intend to make changes to the DPP2 approaches where those changes would:

2.14.1 better promote the purpose of Part 4;[14]

2.14.2 better promote the purpose of default/customised price-quality path regulation;[15]

2.14.3 better promote incentives for suppliers of electricity lines services to invest in energy efficiency and demand-side management, and to reduce energy losses (or better avoid disincentives for the same);[16] and

2.14.4 reduce unnecessary complexity and compliance costs.

2.15 This approach has been adapted from the 2016 IM review framework, and a similar framework was applied when resetting the DPP for gas pipeline businesses in 2017. We consider it will help ensure consistency with the low-cost purpose of the DPP.[17]

2.16 In addition to the above, we will also:

2.16.1 implement any required changes as a result of the 2016 IM review; and

2.16.2 where appropriate, carry across new approaches developed during the DPP we set in 2017 for gas pipeline businesses and for recent CPPs.[18]

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[13] These DPP2 approaches are discussed in the relevant attachments to this paper. However, a full discussion of the DPP2 decision can be found in Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020 – Main Policy paper" (28 November 2014).

[14] Commerce Act 1986, section 52A

[15] Commerce Act 1986, section 53K

[16] Commerce Act 1986, section 54Q

[17] Commerce Commission "Default price-quality paths for gas pipeline businesses from 1 October 2017 – Final reasons paper" (31 May 2017) paras 2.19-2.22.

[18] Commerce Commission "Wellington Electricity's customised price-quality path – Final Decision" (28 March 2018; Commerce Commission "Powerco's customised price-quality path – Final Decision" (28 March 2018)

Economic principles

2.17 We also have three key economic principles that we will have regard to in setting the DPP. These are useful analytical tools when determining how we might best promote the Part 4 purpose:

2.17.1 Real financial capital maintenance (FCM): we provide regulated suppliers the ex-ante expectation of earning their risk-adjusted cost of capital (a 'normal return'). This provides suppliers with the opportunity to maintain their financial capital in real terms over timeframes longer than a single regulatory period. However, price-quality regulation does not guarantee a normal return over the lifetime of a regulated supplier's assets.

2.17.2 Allocation of risk: ideally, we allocate particular risks to suppliers or consumers depending on who is best placed to manage the risk, unless doing so would be inconsistent with section 52A.

2.17.3 Asymmetric consequences of over- and under-investment: we apply FCM recognising the asymmetric consequences to consumers of regulated energy services, over the long-term, of under-investment (versus over-investment).

2.18 We elaborated on each of these principles and how they should be applied in the context of price-quality regulation in our 2016 IM review framework paper.[19]

[19] Commerce Commission "Input methodologies review decisions: Framework for the IM review" (20 December 2016) pages 38-49.

Chapter 3 Context and priorities for DPP3

Purpose of this chapter

3.1 This chapter sets out our view of the context in which we are setting DPP3, our priorities for the EDB sector, and how these priorities apply to the DPP3 reset.

3.2 As discussed in Chapter 2, our fundamental aim when setting a price-quality path is to promote the Part 4 purpose and the purpose of default/customised price-quality regulation. However, what this means in practice changes in response to a changing industry and regulatory context.

3.3 Furthermore, there is a limit to the scope of issues we can address at any given time, especially given the relatively low-cost nature of DPP regulation. As such, we must identify priority areas that help us to focus our activity and resources.

3.4 To help stakeholders understand our reasons for choosing to focus on the issues discussed in the remainder of this paper, this chapter discusses:

3.4.1 the wider context for setting DPP3;

3.4.2 our priorities for the EDBs sector we have set out in previous publications;[20]

3.4.3 our priorities for the DPP3 reset; and

3.4.4 the issues we do not intend to prioritise in the DPP3 reset.

Context for DPP3

3.5 Periodic resets allow us to update the DPP to respond to changing circumstances. This includes not only changes in EDBs' costs and performance, but also to consider wider issues affecting the sector. Our view of each of the most prominent factors is discussed below, specifically:

3.5.1 the Electricity Price Review;[21]

3.5.2 the role of emerging technology;

3.5.3 lessons from previous price-quality path resets; and

3.5.4 recent contraventions of DPP quality standards.

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[20] Commerce Commission "Our priorities for the electricity distribution sector for 2017/18 and beyond" (9 November 2017); Commerce Commission "Priorities 2018/19" (9 August 2018).

[21] More details on the Electricity Price Review, including the Commission's submissions to the Expert Advisory panel can be found on MBIE's website.

Electricity Price Review

3.6 The Electricity Price Review (EPR) provides a useful opportunity to consider the regulatory arrangements of the electricity industry as a whole. The focus of the report of the review's Expert Advisory Panel on delivering the best outcomes for consumers amidst the uncertainty around technological change is consistent with our own aims.

3.7 Matters raised in the context of the review which we have highlighted as relevant to our approach to the DPP3 reset include:

3.7.1 evaluating the effectiveness of the incentives we put in place, including whether they are sufficiently well-understood by EDBs to influence EDB's behaviour;[22] and

3.7.2 whether current service levels, based largely on historical quality levels, actually reflect the level of reliability that consumers want or the level of resilience the New Zealand economy requires.[23]

3.8 The direct impact of the EPR on the DPP3 process may otherwise be limited. However, outside of the DPP, the Commission has and will continue to engage with the Expert Advisory Panel on our specific role in the electricity sector and areas where improvements can be made.

Emerging technology

3.9 The Commission, along with the rest of the industry, continues to monitor the development of emerging technology, and to try to understand the impact it will have on EDBs' performance, investment needs, and business models.

3.10 New technologies that will benefit consumers such as electric vehicle chargers, network batteries, smart meters and solar photovoltaics (PV) will present opportunities and challenges for the electricity sector in upcoming years. Other technologies such as 'industrial internet of things' remote sensing and control systems, advances in protection systems, and advanced probabilistic modelling techniques may influence the way EDBs plan and develop their networks.[24]

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[22] Commerce Commission "Submission on the Electricity Price Review's first report" (23 October 2018), para 21.6

[23] Commerce Commission "Submission on the Electricity Pricing Review proposed terms of reference" (19 January 2018), para 6.1

[24] Vector highlights the potential for data to drive decision making in both their response to the Open Letter and in their 2018 AMP. Vector "Response to open letter on priorities" (22 December 2017), paras 32-39; Vector "Electricity Asset Management Plan 2018-2028" (June 2018), pages 20-24.

3.11 While these developments are important, we must not place undue emphasis on potential future developments to the exclusion of the fundamentals of incentive regulation. As Orion commented in response to the Open Letter:

> …the 'new technology' term has become overused and the turn of discussion risks preventing EDBs from investment and implementation in what should be a natural evolution in the operation of the network using advanced sensing, monitoring and control for the long term benefit of consumers.[25]

3.12 Furthermore, as the Electricity Retailers Association (ERANZ) highlighted in their submission, these technological developments will affect not only how EDBs deliver services, but the kinds of services delivered, and who delivers them:[26]

> what we see emerging now are 'disruptive' technologies – that is they are not simply better 'poles and wires' solutions, but rather technologies that may reduce, defer, substitute, or negate the need for those poles and wires altogether.

Previous work on emerging technology

3.13 Previous work we have undertaken to understand and respond to these changes will impact our approach to the DPP3 reset.

3.14 As a result of our work on emerging technology during the 2016 IM review, we introduced a mechanism for EDBs to apply to shorten the life of their assets and accelerate the assets' depreciation where there is a realistic risk of network stranding in the future.[27] The DPP3 reset will be the first opportunity for EDBs to incorporate an adjustment, subject to Commission approval.

3.15 More recently, we issued an information gathering request on the type and level of investment EDBs are making in emerging technologies. [28] This was a continuation of the work done during the IM review, and was intended to continue our engagement with stakeholders on how emerging technologies are developing in the electricity sector and any changes that may be required to the IMs or any other regulatory and policy settings in the future.

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[25] Orion "Response to open letter on priorities" (22 December 2017), para 8. Orion also noted that technology was an important issue for us to address in setting the DPP (paras 46-54).

[26] ERANZ "Response to open letter on priorities" (22 December 2017), page 9.

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

[28] Commerce Commission "Open letter – Our intention to gather information relating to emerging technologies" (9 May 2018).

3.16 As a result of the information we received in response to this request, it is clear that so far EDBs' investment in emerging technologies is still relatively small, and has been focussed on research and development. It also became apparent that some EDBs were unsure about how to treat these investments under the current regulations.[29]

Relevance for the DPP3 reset

3.17 In addition to the impact of this previous work, as part of the DPP3 reset, we may need to consider:

3.17.1 whether there are any disincentives for EDBs to invest in innovative solutions to issues their networks face (such as a bias towards capital expenditure over operating expenditure solutions);[30] and

3.17.2 the impact which new sources of demand and of distributed generation may have on EDBs' investment needs over the DPP period and beyond, and on the potential for network stranding in the long term.[31]

3.18 To the extent that new technologies deliver efficiency or quality benefits over more traditional solutions, EDBs already have a financial incentive to pursue them, as they do with any other potential source of efficiency. As discussed in Chapter 2, the DPP is a relatively low-cost instrument, limiting our ability to implement bespoke solutions for certain EDBs to types of investment. As such, we need to exercise caution before implementing bespoke solutions or incentives for particular types of investments, technologies, or for particular EDBs.

Lessons from previous price-quality path resets

3.19 We are setting DPP3 in the context of a maturing regulatory regime: EDB DPP3 will be the eighth DPP or CPP we have set since the introduction of the IMs in 2010.[32]

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[29] The information we gathered as part of this request is available on our website.

[30] Several submissions on the Open Letter cited the impact that differing incentive rates for operating and capital expenditure have on the ability to invest in new technologies. See for example: Orion "Response to open letter on priorities" (22 December 2017), para 46; ENA "Response to open letter on priorities" (22 December 2017), page 4; Counties Power "Response to open letter on priorities" (22 December 2018), page 13.

[31] MEUG highlighted the importance of testing future demand scenarios. MEUG "Response to open letter on priorities" (22 December 2018), para 6. See the discussion in Chapter 4 and Attachment G on the accelerated depreciation option.

[32] The previous price-quality paths are: the EDB DPP1 mid-period reset in 2012, Gas DPP1 set in 2013, the Orion CPP in 2013, the EDB DPP2 reset in 2015, the Gas DPP2 reset in 2017, and the Powerco and Wellington Electricity CPPs in 2018.

3.20 When regulating price and quality, we aim to take an incremental approach to development – carrying over lessons from reset to reset and across sectors where relevant.[33] Below, we discuss some examples of what we can learn from previous resets, but this is not an exhaustive list.

3.21 The lessons we have learned in these processes are relevant to DPP3 in two ways:

3.21.1 as a matter of process, as after each major consultation we seek feedback from stakeholders about our consultation and development process; and

3.21.2 substantively, as there may be approaches taken to expenditure, quality, and incentives which may be useful for DPP3.

Feedback on previous processes

3.22 Feedback on the EDB DPP2 process has already informed our proposed approach to the current DPP3 reset, and will continue to do so. The DPP3 Process Paper discusses the changes we have made to our proposed approach to DPP3, in response to previous feedback.[34]

3.23 The feedback we received in response to the Gas DPP2 process has also informed our proposed process for EDB DPP3. In particular, we are focusing on "resources to make clearer and demystify various topics related to the regulatory inputs, outputs, controls and linkages between them", as suggested by the Major Gas Users Group.[35] Examples of this are the explanatory sections of this paper, and the introductory sessions we have held during the process.

Approaches taken in previous resets – Gas pipeline business reset 2017

3.24 In addition to incremental improvements to our process, there are substantive new mechanisms introduced in previous price-quality paths which provide informative context for the DPP3 reset.

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[33] Aurora highlighted the importance of these 'cross-sector precedents' and the need to make these linkages clear. Aurora "Response to open letter on priorities" (22 December 2018) pages 1-2.

[34] Commerce Commission "Default price-quality paths for electricity distribution businesses from 1 April 2020 – Proposed Process" (14 June 2018).

[35] Major Gas Users Group "Feedback on process for resetting default price-quality paths for gas pipeline businesses" (28 August 2017), para 6.

3.25 As discussed in more detail in Attachment B, we are looking at ways to improve the incentives to invest efficiently created by our capital expenditure forecasts. In the 2017 Gas DPP, we adopted an approach which used quantitative and qualitative analysis to scrutinise gas pipeline businesses' capital expenditure forecasts. This provides one option for us to consider when looking to improve our forecast of EDB capital expenditure.[36]

3.26 As discussed in Attachment C, one of the options we are considering for reliability standards is better defining the process which EDBs follow when they have contravened the DPP quality standards. The approach taken to the new gas transmission quality standard in 2017, where the matters the gas transmission business must report on following a contravention are pre-determined, provides an example we could follow.[37]

Approaches taken in previous resets – CPPs set in 2018

3.27 A key innovation in our final decision on Powerco's CPP was the introduction of a new 'annual delivery report'.[38] The purpose of this report was to ensure customers would have transparency as to how Powerco is progressing in delivering the investment forecast in its CPP application.

3.28 The detailed delivery report Powerco is required to produce likely goes beyond what is needed for a DPP.[39] Nonetheless, consistent with our EDB sector priority to make information about EDB performance more accessible, a measure like this (adapted for the low-cost nature of the DPP) may be useful. This could be either within the DPP or through information disclosure.

3.29 As mentioned above at paragraph 3.7.2, better communicating how and why customer prices will change as a result of our decisions is an important part of communicating the value which customers receive from the distribution network. We took a more formalised approach to this issue of consumer price impacts in the Wellington and Powerco CPPs, and intend to use this as a starting point for such analysis in DPP3.

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[36] Commerce Commission "Default price-quality paths for gas pipeline businesses from 1 October 2017 – Final reasons paper" (31 May 2017), Chapter 4.

[37] Commerce Commission "Default price-quality paths for gas pipeline businesses from 1 October 2017 – Final reasons paper" (31 May 2017), paras 7.40-7.47.

[38] Commerce Commission "Final decision on Powerco's 2018-2023 customised price-quality path" (28 March 2018) Attachment K.

[39] Powerco highlighted the need to be cautious when carrying over measures from the CPP framework to the DPP, and specifically highlighted the delivery report as an example of this. Powerco "Response to Open Letter on Priorities" (22 December 2018).

3.30 Finally, as discussed in detail in Attachment G, the approach we took to implementing the revenue cap for Powerco and Wellington Electricity could be a sensible starting point for developing the revenue cap compliance process for DPP3.

Quality standard contraventions

3.31 So far in DPP2, seven businesses have failed to comply with the quality standards at least once, the standards have been contravened eleven times in total.[40] This level of non-compliance may be due to factors specific to individual EDBs or within the wider industry, such as whether:

3.31.1 levels of investment in response to ageing assets are sufficient to deliver services at a level which consumers demand; or

3.31.2 new factors beyond the reasonable control of EDBs have emerged since the quality standards were set in 2015 (for example, an increasing frequency of major storm events, or changes in operating procedures required by health and safety legislation).[41]

3.32 Regulatory factors within the DPP might also be creating issues. We are considering whether:

3.32.1 the incentives to maintain levels of reliability are sufficiently strong and effective;

3.32.2 our approach to normalisation effectively removes the impact of events beyond the reasonable control of EDBs; and

3.32.3 the current 'no material deterioration' standard remains appropriate.

3.33 In considering both these types of reasons, we must also consider what can reasonably be dealt with under a DPP or conversely whether a CPP is the appropriate response to EDB-specific issues. This includes considering both changes to regulatory settings (such as changes to how quality is measured and the level of quality which is expected) and assessing increases or changes to EDBs' expenditure needs.

[40] The full list of contraventions is listed in Attachment C.

[41] Orion "Response to open letter on priorities" (22 December 2017), para 57-58.

EDB sector priorities

3.34 We have previously published a set of priorities for the EDB sector to help ensure we are targeting our efforts on the highest value areas and are choosing the most effective tools available for encouraging improved sector performance. These published priorities, along with the stakeholder feedback we received in response, have informed the scope of and our proposed approach to the DPP3 reset.

EDB sector priorities from our Open Letter

3.35 In our November 2017 Open Letter, we set out three high-level priorities for our work in the EDB sector:[42]

3.35.1 greater understanding of the performance of infrastructure industries;

3.35.2 making information about infrastructure industries accessible to a wider audience; and

3.35.3 adopting an increasingly efficient and effective process for assessing price-quality path proposals by regulated suppliers.

3.36 Of these priorities, the most directly relevant is adopting an increasingly efficient and effective process for setting price-quality paths. In 2017/18, this priority was focused on improving confidence in the CPP process for potential future CPP applicants, in a way which delivered maximum value for consumers. In 2018/19 this focus will shift to delivering the DPP3 reset in a way that allows us to maintain our focus on our other priorities outside of price-quality regulation.

3.37 The understanding we have built up about the performance of infrastructure industries will help inform the decisions we make in DPP3. In particular, our work on asset management may inform our approach to issues like capital expenditure forecasting and quality, and as discussed above, our work on understanding emerging technologies helps set the context for DPP3.

3.38 Finally, in terms of making information about performance accessible, clearly communicating the impact of our decisions on EDBs and on consumers will form an important part of our DPP process. Beyond this, we may also consider whether there are low-cost ways to make EDBs performance against the DPP more readily available.

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[42] Commerce Commission "Our priorities for the electricity distribution sector for 2017/18 and beyond" (9 November 2017), para 4.

Quality of service is a priority for the Commission in 2018/19

3.39 The Commission is prioritising work on quality of service for EDBs across our regulatory work in 2018/19. As we stated in our 2018/19 Priorities document:

> In the next reset we will consider whether 'no material deterioration' remains the appropriate basis for the minimum reliability standards. We will also consider whether other dimensions of quality should be monitored alongside the existing reliability measures, such as communication to customers during outages.[43]

3.40 We had already identified the link between price and quality as a priority for the DPP reset when we published the Open Letter in 2017.[44] Our decision to focus on this has been reinforced by subsequent developments, such as submissions on the Open Letter, the matters raised by the EPR, and continued contraventions of quality standards by EDBs.

3.41 As a result, we intend to focus on quality of service across a range of activities, including the DPP. This focus informs much of the material discussed in Attachments C and D of this paper.

Priorities for EDB DPP3

3.42 Consistent with the context and priorities discussed above, we have set out three priority areas for the DPP3 reset:

3.42.1 giving effect to changes already made to the IMs and ensuring they are workable;

3.42.2 reassessing the link between price and quality; and

3.42.3 robust, low-cost forecasts of operating and capital expenditure.

Giving effect to changes to the IMs

3.43 Our first priority is to give effect to decisions we have already made in previous consultations. Some of the key IM changes made since the 2015 reset, which we will be implementing in the DPP3 reset include:

3.43.1 the option to reduce asset lives and accelerate depreciation;

3.43.2 the move from a weighted average price cap to a revenue cap; and

3.43.3 changes to the incremental rolling incentive scheme (IRIS).

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[43] Commerce Commission "Priorities 2018/19" (9 August 2018), page 3.

[44] Commerce Commission "Our priorities for the electricity distribution sector for 2017/18 and beyond" (9 November 2017), Attachment, paras 5-6.

3.44 In addition to implementing these decisions in the DPP, we may identify further changes to the IMs that are necessary to make these decisions workable. An example of this which we have already implemented is changes to the accelerated depreciation option.[45] Additionally, we are considering changes to the revenue cap wash-up mechanism to deal with price volatility, that are discussed in Attachment G.

Link between price and quality

3.45 Setting appropriate quality standards, as well as quality incentive mechanisms where revenue can be linked to quality, can support the objective of ensuring EDBs provide electricity distribution services to consumers at a level of quality reflecting their demand.

3.46 We recognise, however, that there is a limit to how targeted any incentives for service quality can be through a price-quality path.[46] It is not necessarily an easy task to understand consumer price-quality preferences, or to translate those preferences into effective and enforceable standards and incentive mechanisms.[47] Disclosure of information about EDB quality performance can provide complementary, and potentially more targeted, incentives for promoting this objective.

3.47 However, in terms of our approach to DPP quality standards and the link between price and quality, we are considering:

3.47.1 other dimensions of quality, including their relative weighting – for example, whether our measures of quality should go beyond the current reliability limits (the SAIDI and SAIFI limits);

3.47.2 whether quality standards should continue to be set based on network averages, or be disaggregated to more appropriately reflect the demands of particular consumer groups (for example, by location or type);

3.47.3 whether 'no material deterioration' remains the principle we should continue to use for reliability, including to what extent other factors (such as the effect of changes in health and safety legislation) have affected the appropriateness of using historical data to set reliability limits;

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[45] Commerce Commission "Electricity distribution services input methodologies (accelerated depreciation) amendments determination 2018 " (8 November 2018).

[46] Counties Power noted that the current quality standards are a blunt instrument for incentivising quality of service. Counties Power "Response to open letter on priorities" (22 December 2018).

[47] Nonetheless a focus on customer preferences remains vital. Vector focused on the importance of understanding customer preferences across a broad range or EDB and regulatory activities. Vector "Response to open letter on priorities" (22 December 2017), paras 20-25.

3.47.4 the effectiveness of our approach to reliability limits in reducing 'false positives' (the effectiveness of the 'two out of three rule', setting the reliability limit at one standard deviation above the mean, and the treatment of extreme events); and

3.47.5 whether the link between price and quality could be improved. In particular, how effective the existing revenue-linked quality standards are.

Operating expenditure and capital expenditure forecasts

3.48 As discussed in Chapter 4, the approaches for deriving most key financial inputs to the DPP are already determined by the IMs. Therefore the most important decisions we need to make when setting the price path are those related to forecast capital expenditure and operating expenditure.

3.49 There is always a risk of false precision when refining forecasting techniques. Nonetheless, in terms of forecasting capital expenditure and operating expenditure in a relatively low-cost way, consistent with our principle of proportionate scrutiny, we are considering:

3.49.1 the extent to which the approach to capital expenditure we took in DPP2 remains fit for purpose for the DPP3 reset., and whether the approach we took to the 2017 Gas DPP reset, which involved assessing AMP forecasts, offer any improvements;

3.49.2 what we can do to ensure how we set price-quality paths that do not stand in the way of the ongoing application of emerging technology solutions to consumer and network issues (for example, whether we should consider aligning the incentives to spend capital expenditure versus operating expenditure to mitigate any tendency to favour traditional 'poles and wires' network solutions over non-network solutions, including those employing emerging technologies); and

3.49.3 the ways in which we can ensure consistency between forecast expenditure, and the quality standards and incentives we set.

Matters we do not intend to prioritise in DPP3

3.50 Given the need to prioritise discussed above, there are certain matters which – while important to the regime as a whole – we do not intend to focus on for this reset. In some cases, this is because tools outside the DPP provide a better response to particular issues. In other cases, finding solutions to the issues in question requires long-term development, and may be better addressed in future resets, building on work done in this DPP and in other areas of the regime.

3.51 The most significant examples of these issues are:

3.51.1 asset management;

3.51.2 changes in our approach to efficiency and productivity;

3.51.3 detailed EDB- or region-specific tailoring of forecasts and other mechanisms; and

3.51.4 changes to the length of the DPP.

Asset management

3.52 While asset management is, and remains, an important focus for the Commission, this work will continue to be predominantly a performance analysis task. We are encouraged by developments led by the industry, such as the Asset Information Managers Forum piloted by the Electrical Engineers Association.[48] We will continue to engage on such initiatives, and to monitor whether benefits are flowing through to consumers as a result.

3.53 Over the longer term, there may be a role for the systematic consideration of risk/price trade-offs (using analytical tools like asset health and criticality frameworks) in the setting of price-quality paths. However, this is an area where both the Commission and industry must develop further. As such, this is more likely to be relevant for CPP proposals or in future DPP resets.

Changes to our approach to efficiency and productivity

3.54 Fundamentally, we consider our current approach to efficiency – where efficiency gains are not passed through to consumers until after they have been made to create an incentive for EDBs to find efficiencies – remains sound. As such, our work on efficiency is likely to focus on strengthening incentives within our existing IRIS framework.

EDB and region-specific tailoring

3.55 While submissions on our Open Letter contained several suggested cases where region or EDB-specific tailoring of the DPP might be warranted, it remains our view that beyond a certain point a CPP is the best tool for dealing with an EDB's particular circumstances.

[48] Electrical Engineers' Association "Response to open letter on priorities" (21 December 2017), page 1

Changes to the length of the DPP

3.56 In the Open Letter, we identified the option of reducing the DPP period to four years as an option for dealing with forecasting difficulties in the final year of the DPP period. However, as Orion identified in its submission on the Open Letter, many EDBs' debt facilities management are predicated on a five-year regulatory period.[49] As such, we no longer consider it likely that we will implement a four-year period, and instead will focus on other means for dealing with forecasting in the later years of the DPP.

[49] Orion "Response to open letter on priorities" (22 December 2017), para 44-45.

Chapter 4 Our approach to regulating price and quality

Purpose of this chapter

4.1 This chapter provides a high-level overview of the core components of the DPP and the decisions we will need to make on each of them.

How we regulate price and quality

4.2 This section discusses how we regulate price and quality for EDBs, and specifically how the DPP works. It discusses:

4.2.1 which businesses are regulated under the EDB DPP;

4.2.2 how we set the price path; and

4.2.3 how we set quality standards and incentives.

EDBs regulated under price-quality regulation

4.3 All businesses which provide electricity distribution services are regulated under Part 4 of the Commerce Act.[50] Of the 29 EDBs, 12 are exempt from price-quality regulation because they are consumer-owned.[51]

4.4 The EDBs currently subject to price-quality regulation, both the DPP and CPPs, are set out below and IN Figure 4.1 overleaf.

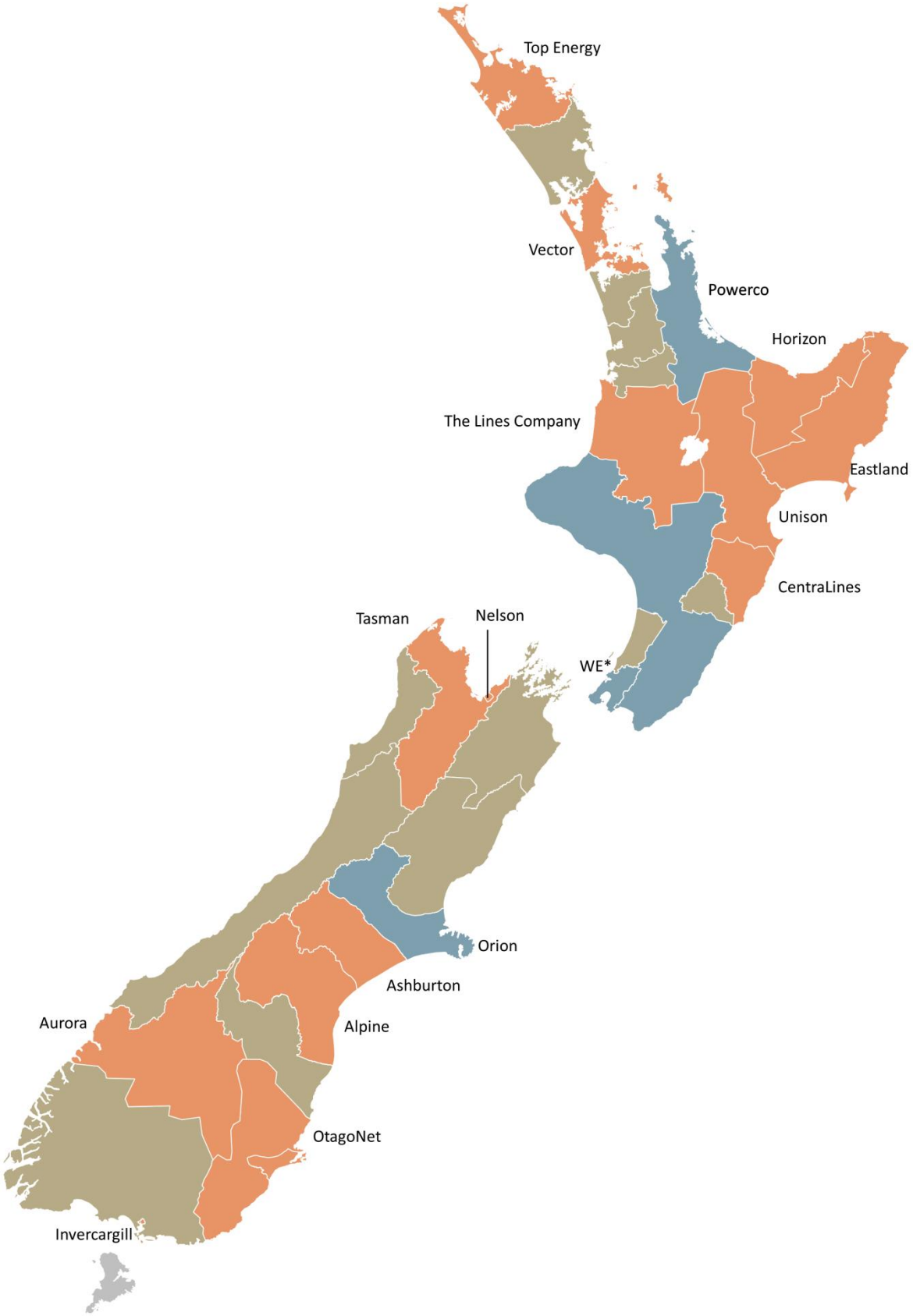
Table 4.1 EDBs currently subject to price-quality regulation

EDBs subject to the DPP			
Alpine Energy	Aurora Energy	Centralines	Eastland Network
EA Networks	Electricity Invercargill	Horizon Energy	The Lines Company
Network Tasman	Nelson Electricity	OtagoNet JV	Top Energy
Unison Networks	Vector Lines		
EDBs subject to a CPP			
Orion (ends 2019)	Powerco (ends 2023)	Wellington Electricity (ends 2021)	

[50] Commerce Act 1986, section 54E

[51] 'Consumer-owned' is defined in Commerce Act 1986, section 54D

Figure 4.1 EDBs currently subject to price-quality regulation



How the price limit is specified

We limit the maximum revenue EDBs can earn

4.5 In the DPP3 reset, we will be specifying the maximum revenues that EDBs can earn over the regulatory period. The Act gives us a choice as to the 'form of control' which applies to each regulated supplier.[52] In the 2016 IM review, we changed the form of control for EDBs from a weighted average price cap to a revenue cap with a 'wash-up' for over and under recovery of revenue.[53]

4.6 This form of control sets annual maximum revenues an EDB can earn in a given year. Unlike a price cap, this maximum revenue is independent of demand.

The limit on revenue provides incentives to focus on controllable costs

4.7 Setting price and revenue limits means that profitability depends on the extent to which EDBs control costs. Actual costs may differ from forecasts for a variety of reasons, but the incentive to increase profits helps to create an incentive for suppliers to reduce costs.

4.8 There is a risk that suppliers may find these cost savings by reducing investment or maintenance. Quality standards (discussed in detail below) play an important role in reducing the risk of this occurring.

4.9 Costs that suppliers have little or no control over are recovered through separate allowances for 'pass-through costs' and 'recoverable costs'. The items that qualify for these categories are set out in the IMs.[54]

The revenue limit setting process

4.10 The DPP must specify revenue and quality standards for each EDB for the regulatory period, as set out in section 53M of the Act. The price and revenue limits are set net of pass-through costs and recoverable costs. The two main components of these price limits are:

4.10.1 the 'starting price' allowed in the first year of the regulatory period; and

4.10.2 the 'rate of change in price', relative to the Consumer Price Index (CPI), that is allowed in later parts of the regulatory period.

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[52] Commerce Act 1986, section 53M(1)(a).

[53] *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26 (consolidated 3 April 2018) , clause 3.1.1; Commerce Commission "Input methodologies review decisions: Report on the IM review" (20 December 2016), page 78.

[54] *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26 (consolidated 3 April 2018) , clause 3.1.3.

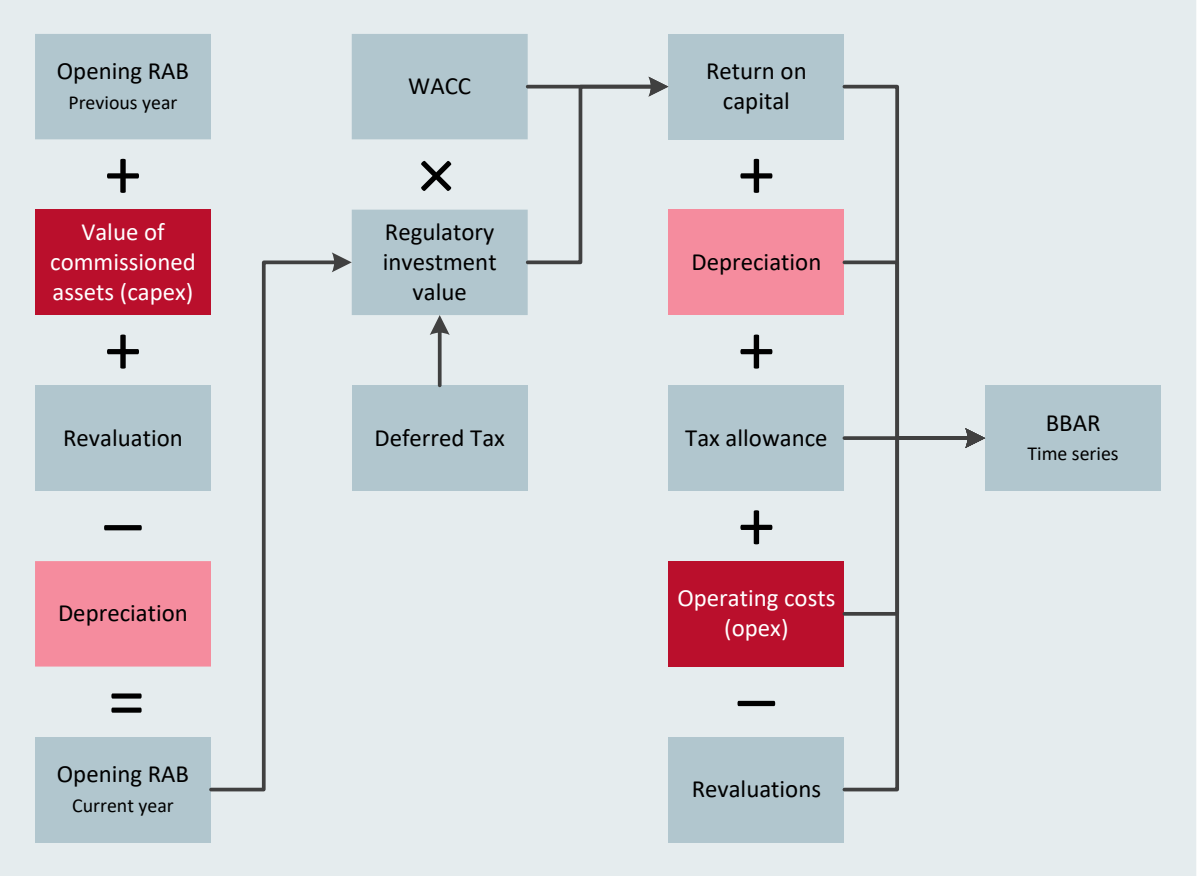
4.11 When setting this starting price under a DPP, the Act provides for two approaches:

4.11.1 rolling over the prices applying at the end of the preceding regulatory period; or

4.11.2 based on the current and projected profitability of each EDB, as determined by the Commission.

4.12 To assess the current and projected profitability of each EDB, we use a 'building blocks' approach, which adds up the components of an EDB's costs, and sets revenue equal to them.

Figure 4.2 How we calculate BBAR



The building blocks allowable revenue approach

4.13 The starting prices we set for EDBs are specified in terms of maximum allowable revenue (MAR), which is an amount net of pass-through costs and recoverable costs. We calculate the MAR amount through two key processes.[55]

[55] In practice, these processes are calculated in the EDB DPP financial model. We have published an initial draft of this model alongside this paper.

4.13.1 Determining a building blocks allowable revenue (BBAR) for each year of the regulatory period. This process is represented in Figure 4.2 above.

4.13.2 Smoothing each of the BBAR amounts over the regulatory periods by CPI in present value terms. This represents the yearly changes to the revenue limit that are allowed over the regulatory period. This process is represented in Figure 4.3 below.

4.14 The inputs highlighted in red (capital expenditure and operating expenditure) are those which we must forecast as part of the DPP, and which are not determined by the IMs. The item in pink (depreciation) is affected by our decisions on accelerated depreciation, but is predominantly determined by the IMs.

4.15 Some other inputs come from ID, while others are specified in the IMs. Some of these ID and IMs inputs have a material effect on starting prices, for example, the opening regulatory asset base (RAB, from ID) or the weighted average cost of capital (WACC) rate (determined based on the IMs).

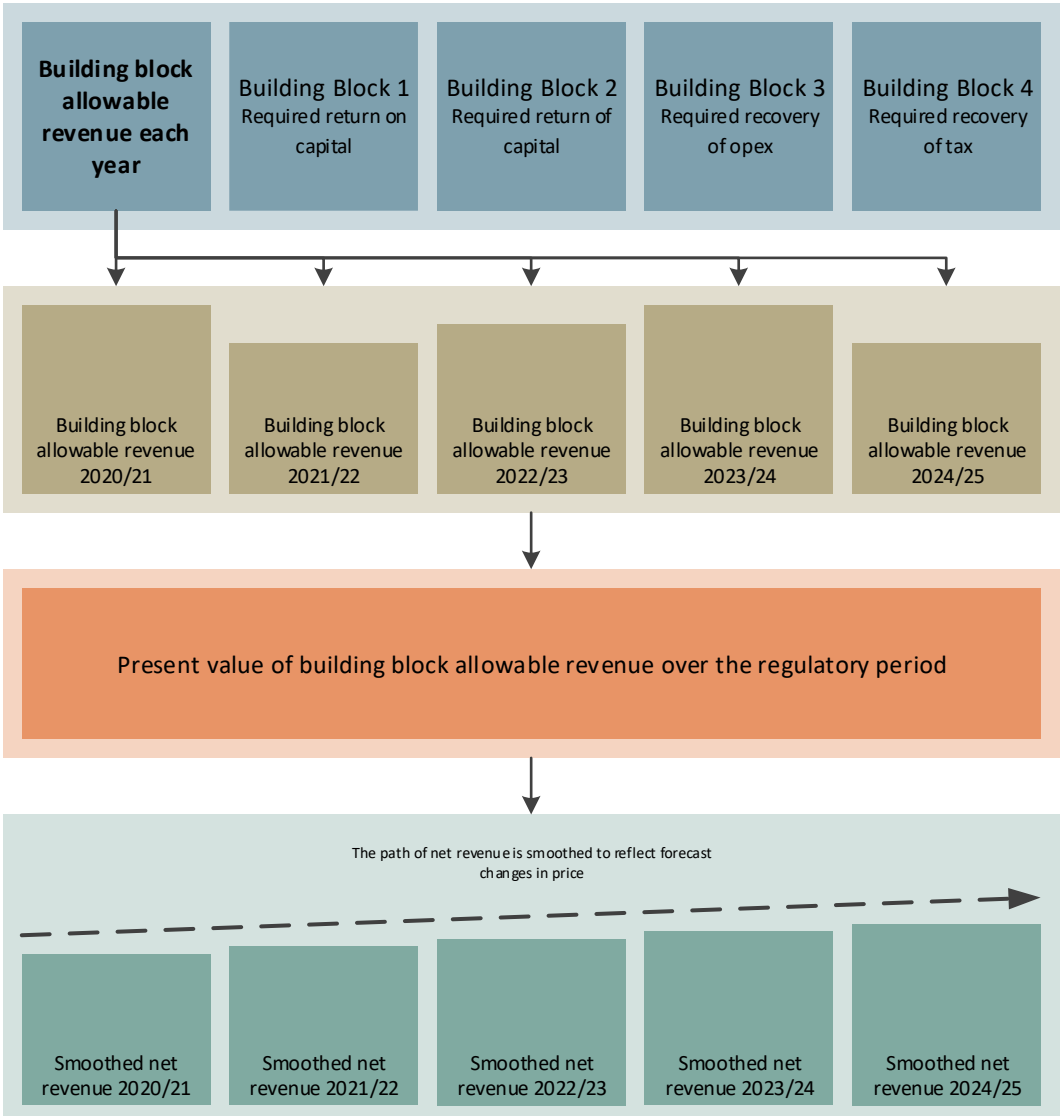
From building blocks to starting prices

4.16 The components in Figure 4.2 combine as building blocks to provide total BBAR for each year of the regulatory period. This BBAR is then smoothed into annual MAR figures through applying forecast CPI, and the X-factor.

4.17 We smooth this in such a way that the present value of BBAR and MAR are the same. Figure 4.3 below illustrates this process.

4.18 The overall present value of revenues which the regulated suppliers will be able to earn over the DPP regulatory period is unaffected by the choice of the X-factor. The X-factor will determine the timing of the MAR that the regulated supplier can earn over the regulatory period, but not the present value of revenues.

Figure 4.3 From BBAR to MAR



How quality standards and incentives are specified

Why we set quality standards and incentives

4.19 As discussed in Chapter 2, the Act requires us to specify in price-quality paths the quality standards that must be met by a regulated supplier.[56] Most directly, these quality standards and incentives are intended to provide suppliers with an incentive to deliver services at a quality that meets consumer demand.

[56] Commerce Act 1986, section 53M(1)(b).

4.20 However, quality standards and incentives are also important for mitigating potential perverse incentives to underinvest. As we limit revenue for the duration of a DPP period, a supplier may be able to increase profitability in the short-term by underinvesting in the renewal and maintenance of its assets. Robust quality standards can mitigate this risk by ensuring suppliers face the consequences of this risk, not just their consumers.

Standards and incentives in DPP2

4.21 The Act gives us wide discretion in terms of the quality standards we can set for suppliers.[57] The standards and incentives we set for EDBs in DPP2 were based on the reliability of the network, as summarised briefly below, and discussed in detail in Attachment C.

4.22 For DPP2, we chose to implement two quality of service measures:

4.22.1 an enforceable quality standard, with compliance consequences when contravened; and

4.22.2 a revenue-linked quality incentive scheme.

4.23 In addition to measures under the DPP, we also have the option of setting standardised information disclosure requirements for quality of service information.[58]

How we have specified reliability standards

4.24 As with expenditure forecasts, the quality standards we have determined in the past have been linked to each EDB's historical performance. In the case of quality, this has meant a 'no material deterioration' approach, where EDBs must (within certain limits) maintain the level of reliability they have delivered to their customers in the past.

4.25 We have measured reliability in two ways:

4.25.1 the average annual duration of interruptions on the network (the System Average Interruption Duration Index, or SAIDI); and

4.25.2 the average annual frequency of interruptions on the network (the System Average Interruption Frequency Index, or SAIFI)

[57] Commerce Act 1986, section 53M(3).

[58] Commerce Act 1986, section 53C(2)(i).

4.26 To implement this no material deterioration in SAIDI and SAIFI standard, we:

4.26.1 took a ten-year average of each EDB's SAIDI or SAIFI performance;

4.26.2 adjusted this average to remove the effect of major events beyond the reasonable control of the EDB;

4.26.3 adjusted the historical data to ensure EDBs who had contravened their historical quality standards did not benefit from having done so; and

4.26.4 set a quality limit standard one standard deviation above (worse than) the historical average.

4.27 These SAIDI and SAIFI limits were assessed separately, and only constitute a contravention when the limit was exceeded two years out of three.

4.28 In addition to the enforceable standard, we also set a revenue-linked quality incentive scheme, which rewarded EDBs for improvements in quality, or penalised them for declines. This incentive is described in more detail in Attachment C.

Chapter 5 Specific issues in setting DPP3

Purpose of this chapter

5.1 This chapter discusses issues specific to the DPP3 reset which we will need to address as part of setting the DPP, and that fall outside of the major components of every DPP that were discussed in Chapter 4. The issues we discuss are:

5.1.1 implementing the revenue cap we introduced as part of the 2016 IM review;

5.1.2 implementing our IM mechanism for EDBs to apply for a discretionary net present value-neutral shortening of their remaining asset lives (also referred to as accelerated depreciation);

5.1.3 transitions between CPPs and the DPP;

5.1.4 the window for CPP applications; and

5.1.5 the process for reopening the price-quality path.

Implementing the revenue cap

5.2 As a result of the IM review in 2016, we changed the form of control for EDBs from a weighted average price cap to a revenue cap, including a wash-up for over- and under-recovery of revenue.[59] Our proposed approach for implementing our IM amendments, made as a result of the 2016 IM review, for DPP3 are discussed in detail in Attachment G, and are summarised below.

Impact of changes in the form of control

5.3 With the move to a revenue cap, we are now required to limit EDBs' prices in a way that is independent of changes in demand for electricity distribution services. EDBs forecast net allowable revenue (net of pass-through and recoverable costs) for the period is set through starting prices at the start of the period, and then changes each year by CPI and the X-factor: it does not increase or decrease based on increases or decreases in demand (for example, the number of customers connected or the number of GWh consumed in a year).

[59] Commerce Commission "Input methodologies review decisions: Report on the IM review" (20 December 2016), page 78.

Forecasts of constant-price revenue growth

5.4 The most immediate effect of this change is to remove the need for us to forecast EDBs' demand over the DPP3 regulatory period. In previous DPPs set under a price cap, we used a model that forecast 'constant-price revenue growth' (CPRG) to create this demand forecast. This is no longer required, so a CPRG model and the policy decisions necessary to develop one are not part of the DPP3 consultation.

Revenue recovery during the period

5.5 Because of the introduction of the wash-up mechanism, during the regulatory period EDBs no longer have to recover the entirety of their revenue allowance *for* a given year *in* that year.[60] Subject to certain limitations discussed below this allows EDBs more flexibility to smooth the recovery of their revenue over the period.

Policy decisions we have to make to implement the revenue cap

5.6 As a result of our 2016 IM review, we changed the form of control for EDBs from a weighted average price cap to a revenue cap, including a wash-up for over and under-recovery of revenue.[61]

5.7 We propose to generally implement our DPP3 determination consistently with how our Powerco Limited Electricity Distribution Customised Price-Quality Path Determination 2018 (Powerco CPP) price path requirements were drafted.[62]

5.8 We propose not specifying an annual maximum percentage increase in 'forecast allowable revenue as a function of demand' for DPP3 as we do not consider that it will adequately mitigate the risk of price shocks.[63] However, as we still consider that price shocks are a problem, we are considering whether to implement a mechanism allowing a maximum percentage increase in 'forecast revenue from prices'.[64]

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[60] The wash-up mechanism is discussed in Attachment G, and is designed to make EDBs or their customers whole for revenue under- or over-recovery due to differences between expected quantities when prices for a year are set and when the revenue is actually recovered (forecast error). The wash-up works by allowing EDBs to increase revenue in a subsequent year where it has under-recovered, or forces them to recover less revenue where they have over-recovered.

[61] Commerce Commission "Input methodologies review decisions: Report on the IM review" (20 December 2016), page 78.

[62] *Powerco Limited Electricity Distribution Customised Price-Quality Path Determination 2018* [2018] NZCC 5 (28 March 2018), clauses 8.1-8.2, 8.4, 8.6, and Schedules 1.1 – 1.6.

[63] As a result of our 2016 IM review change in the form of control for EDBs to a revenue cap, including a wash-up for over and under-recovery of revenue, we introduced a mechanism allowing us to specify in a DPP determination an annual maximum percentage increase in forecast allowable revenue as a function of demand for a disclosure year. See clause 3.1.3(2) of the EDB IM.

[64] We have begun work on our specification of price IM to consider whether introducing an IM mechanism to allow a DPP to implement a limit on the annual percentage increase in forecast revenue from prices could be a way to mitigate the risk of price shocks. We have published a notice of intention allowing us to

5.9 We intend to specify a mechanism in our DPP3 determination for calculating 'voluntary undercharging amount foregone', including introducing a 'pricing floor' as the forecast allowable revenue multiplied by 90%.[65]

Accelerated depreciation

5.10 As a result of our 2016 IM review, we introduced a mechanism for EDBs to apply for a discretionary net present value-neutral shortening of their remaining asset lives. This mechanism allows EDBs to elect new asset lives based on their assets' expected economic lives rather than their physical asset lives.[66]

5.11 In 2018, we made further IM implementation changes to better give effect to our 2016 IM review decision.[67]

5.12 No later than 13 months prior to the commencement of DPP3, EDBs may apply to us for 'an adjustment factor'.[68] We propose to include a draft response to applications as part of our draft DPP3 decision. We will include the draft value of the 'adjustment factor' for each EDB in the inputs to the financial model released as part of the draft decision. The adjustment factor determines the level of acceleration allowed.

Transition between CPPs and the DPP

5.13 At the start of DPP3, four EDBs will either be on, have recently finished, or intending to apply for CPPs. These businesses are listed in Table 5.1 below, along with the relevant CPP start/end dates. The approach we are considering for each business is then discussed below.

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commence consultation on a possible IM amendment. See Commerce Commission "Notice of Intention: Proposal to Amend Input Methodologies for Electricity Distribution Services" (15 November 2018).

65 As a result of our 2016 IM review change in the form of control for EDBs to a revenue cap, including a wash-up for over and under-recovery of revenue, we introduced a mechanism requiring EDBs for each disclosure year to calculate and record any 'voluntary undercharging amount foregone'. See clause 3.1.3(12)(a) and 3.1.3(13)(a) of the EDB IM.

66 Commerce Commission "Input methodologies review decisions: Topic paper 3: The future impact of emerging technologies in the energy sector" (20 December 2016), para 84-86.

67 Commerce Commission "Electricity Distribution Services Input Methodologies (Accelerated Depreciation) Amendments Determination 2018" (8 November 2018).

68 Commerce Commission "Electricity Distribution Services Input Methodologies Determination 2012", as amended 8 November 2018, clause 4.2.2(5).

Table 5.1 Businesses on or applying for CPPs

EDB	CPP end date
Orion NZ	CPP ends 31 March 2019
Wellington Electricity	CPP ends 31 March 2021
Powerco	CPP ends 31 March 2023
EDB	**CPP application date**
Aurora Energy	Application signalled for May 2020

Orion

Orion's transition off the CPP

5.14 Orion's transition off its CPP presents challenges for setting DPP quality standards and incentives and expenditure forecasts on a historical basis. However, for the reasons discussed below, our initial view is that we will treat Orion on the same basis as all other EDBs, but we will make exceptions where the result of doing so is either unworkable or creates perverse outcomes for consumers.

5.15 Orion applied to the Commission for a CPP in 2013 to deal with the increase in expenditure required to respond to the 2011 Canterbury earthquakes.[69] This CPP will end on 31 March 2019, prior to the end of the current DPP. In 2016, we determined that the prices which will apply for Orion for the final year of the DPP (ending 31 March 2020) would be the prices for the final year of the CPP rolled over with an increase at the rate of CPI.[70]

5.16 In its submission on our proposed process, Orion said that it would appreciate an indication of how we would treat expenditure forecasting and quality for Orion given its transition off the CPP.[71]

Setting starting prices and quality standards for Orion

5.17 As Orion will have transitioned off the CPP by the time the DPP is reset, we will have to set starting prices and quality standards for it.

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[69] Commerce Commission "Final decision for setting the customised price-quality path of Orion New Zealand Limited" (29 November 2013)

[70] Commerce Commission "Orion New Zealand's transition to the 2015-2020 default price-quality path – Final Report" (7 October 2016)

[71] Orion "Submission on proposed process for the 2020 default price-quality path for electricity distributors" (17 July 2018), para 7

5.18 As discussed in Chapter 2, two of the low-cost principles we apply are that the DPP treats all EDBs on a common basis, and that we make use of existing information where possible.

5.19 As such, our starting point is that Orion's price-quality path should be set in common with other EDBs, making use of ID information to the extent that we can. Any exceptions we do make are likely to take the form of use of an adjusted data set as an input to the default methodology for operating expenditure, capital expenditure, or quality, rather than a bespoke approach to these issues.

5.20 As discussed in Chapter 4, and in the relevant attachments, we have yet to determine our precise approach to operating expenditure, capital expenditure, and quality, so we cannot provide a firm response at this stage as to what, if any exceptions will need to be made. The analysis we have done so far indicates that our default approach to Orion is tenable:

5.20.1 the likely operating expenditure base year for Orion is the year ending 31 March 2019, the final year of the CPP, which will likely provide a reasonable basis for setting forward expenditure;

5.20.2 Orion's aggregate forecast capital expenditure levels in its 2018 AMP are comparable to its expenditure prior to the CPP application; and

5.20.3 Orion's SAIDI and SAIFI performance has improved over the course of the CPP period to levels similar to its pre-earthquake levels.

Powerco

Powerco's CPP

5.21 If Powerco does not apply for a new CPP following its current CPP, it will return to the DPP, and we will need to determine what starting prices apply. Powerco will transition off its current CPP on 1 April 2023.

5.22 What happens when a CPP ends is governed by section 53X of the Act.
Section 53X(2) of the Act gives the Commission two options for determining prices for the CPP-DPP transition:

5.22.1 rolling over the starting prices which applied at the end of the CPP period; or

5.22.2 with four months' notice to the supplier, determining different starting prices that will apply.

5.23 Unlike starting prices, section 53X does not give us the power to determine quality standards when a business transitions off a CPP.

Setting starting prices for Powerco

5.24 Our proposed approach for Powerco is not to set starting prices as part of the DPP3 reset. We have also considered:

5.24.1 setting binding starting prices in the DPP3 reset; or

5.24.2 setting an indicative starting price, and then formalising it closer to the end of the CPP under section 53X of the Act.

5.25 The DPP reset occurs too far in advance of Powerco's transition for us to reliably forecast what its starting prices should be in the year starting 1 April 2023. In particular Powerco's significant capital expenditure programme over the CPP makes forecasting its RAB in 2023 difficult at this point, and the availability of setting prices under section 53X makes it unnecessary.

5.26 Orion's transition during the current DPP period gives us a useful precedent for how to manage the transition following Powerco's current CPP. We anticipate engaging with Powerco later in the EDB DPP3 period to decide how we will set its prices from 1 April 2023.

Quality standards and incentives for Powerco

5.27 Unlike starting prices, we do not have the option of determining Powerco's quality standards at the time of the CPP to DPP transition. As such, we will have to determine quality standards and incentives for Powerco when setting the DPP. We have identified multiple options for how this could be done:

5.27.1 setting quality standards as for all other EDBs when we set DPP3 in 2019;

5.27.2 determine quality standards formulaically, allowing for additional information to inform how they are eventually set when the CPPs end; or

5.27.3 rolling over the CPP quality standards.

5.28 As we do not yet have an established position on how we will determine quality standards for all EDBs, we do not have a view on which of these options is preferable. However, we note that improvements in reliability over the CPP period were a part of Powerco's CPP, so a roll-over may be appropriate.

Wellington Electricity

5.29 Wellington Electricity's current CPP ends on 31 March 2021. Assuming Wellington Electricity does not apply for a new CPP, they will transition on to the DPP from 1 April 2021.

5.30 Wellington Electricity is not on a 'full' CPP, but one which took DPP2 revenue and expenditure allowances as a base, and added incremental expenditure for additional resilience work and an additional resilience quality standard.

5.31 Our options for setting starting prices and quality standards for Wellington Electricity are the same as set out above for Powerco, but for the reasons discussed below, our emerging views on the appropriate solution are different.

Setting starting prices for Wellington Electricity

5.32 Our emerging view is that we should include Wellington Electricity within the DPP setting process. This would involve setting indicative operating expenditure and capital expenditure forecasts that we would use to set a starting price. We would retain our ability to update these forecasts in 2020 using section 53X, once more information is available (in particular, updated 'initial conditions' data used in the financial model).

5.33 Unlike Powerco and Orion, Wellington Electricity's CPP only overlaps the current DPP by a single year. This means that forecasting its revenue requirements for the DPP3 period poses only limited additional difficulty over and above other EDBs on the DPP.

5.34 Furthermore, Wellington Electricity's unique CPP circumstance – where the DPP was used as a base, with an increment for resilience investments – means that a roll-over is not an appropriate means of transitioning them off the CPP. We consider that roll-over is not appropriate as this would in effect lock in the revenue allowance first set in 2015 (and increased in 2018) until 2025.

Setting quality standards and incentives for Wellington Electricity

5.35 We do not have a firm view on the appropriate approach to setting quality standards and incentives for Wellington Electricity. However, we do not consider that rolling over CPP quality standards (one of the options identified above for Powerco) would be appropriate. As with starting prices, rolling over quality standards would in effect lock in decisions first made in 2015. [72]

[72] The resilience quality standard applied to Wellington Electricity was specific to the delivery of their CPP expenditure proposal and will no longer apply if Wellington Electricity transitions to the DPP.

Aurora

5.36 Aurora has publicly indicated its intention to apply for a CPP in 2020, following the setting of the DPP.[73] Given the scale of expenditure increases that Aurora has signalled in their AMP, we consider a CPP application is appropriate. A proportionate approach to scrutinising that level of expenditure increase requires a more detailed assessment than is possible under any conceivable DPP approach.

5.37 Nevertheless, as Aurora will be on the DPP for at least one year, we will need to set workable starting prices and quality standards. We have not yet formed a fixed view of what this would entail.

CPP application windows

5.38 Determining the date each year by which EDBs must submit CPP applications is one of the statutory requirements for the DPP determination.[74] For our original DPP2 decision, we specified these dates as two single week windows for applications: one in February, and one in May.[75]

5.39 For both Powerco and Wellington Electricity's CPPs, we have had to amend these windows.[76] As such, we are reconsidering whether these windows remain appropriate. The original reasons for a fixed application window were to allow the Commission to prioritise CPP applications in the event that we receive more than four in a single year.

5.40 Our pre-CPP engagement process, which we have developed through the Wellington Electricity and Powerco CPPs (and potential Aurora and First Gas CPPs) means that we do not expect to receive five or more applications in a single year. Where there were multiple applications, we expect that we would know well in advance.

5.41 In addition to changing the timing of the fixed window, we are considering implementing a single final date for CPP applications, after which we would not set starting prices in time for the next pricing year. [77]

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[73] Aurora "Annual Report 2018" (September 2018), page 11.

[74] Commerce Act 1986, section 53O(e).

[75] *Electricity Distribution Services Default Price-Quality Path Determination 2015* [2014] NZCC 33 (28 November 2014), clause 7.

[76] *Electricity Distribution Services Default Price-Quality Path (CPP Window) Amendment Determination* [2017] NZCC 9 (30 November 2017), clause 6.

[77] Such an approach would still not allow CPP applications in the final year of the DPP (from 1 April 2024 to 31 March 2025) as applications within 12 months of the DPP being reset are precluded by section 53Q(3) of the Act.

Clarifying the DPP reconsideration and amendment process

5.42 During the current DPP period, we have considered six DPP reconsideration or amendment requests. The process for considering these requests has developed over time but lacks certainty for the EDBs and other parties involved in them.[78]

5.43 We propose including guidelines for how the reconsideration process will work as part of the DPP consultation materials, to help increase certainty for EDBs, the Commission, and other interested parties.

5.44 This guidance would encompass:

5.44.1 the dates by which we would need to receive a request to allow sufficient time to consider and potentially amend the path for the next pricing year;

5.44.2 the information we would expect to accompany the initial request; and

5.44.3 the circumstances in which we would need to publicly consult on a decision.

5.45 We have also considered including this guidance as firm rules within the IMs or DPP determination. However, while specifying the application process either in the IMs or DPP determination would provide a greater degree of certainty for parties, we consider it is necessary to retain a degree of flexibility in our process as it is difficult to anticipate the particular circumstances of a request. This is especially true for catastrophic event reopeners and quality standard reopeners which may require scrutiny similar to that applied during a CPP.

[78] We amended the DPP for Top Energy and Powerco in 2015 to fix errors in their quality of service standards. Centralines also requested an amendment due to an alleged error, which was not accepted. Wellington Electricity and Powerco both required the DPP to be amended to change the CPP application windows. One EDB requested an error reopener due to information used to set its other regulated income forecasts. And Vector has requested a change event reopener to take account of changes in health and safety policies (this is still under consideration).

Chapter 6 Future process and how you can provide your views

Purpose of this chapter

6.1 This chapter sets out the process we intend to follow for the rest of the DPP3 reset and what each step of the process will address. It also provides details on how you can provide your views on this paper.

Process for the DPP3 reset

6.2 We have structured the DPP3 reset process to allow interested parties multiple opportunities to participate in its development. In Table 6.1 we set out the process we have followed so far. In Table 6.2 we set out the dates of each major consultation step for the rest of the DPP process, which are then discussed below.

Table 6.1 Process we have followed so far

Date	Publication/event
9 Nov 2017	Open letter on our priorities for the electricity distribution sector published
14 Jun 2018	Process paper published
17 Jul 2018	Notice of intention on accelerated depreciation
23 Aug 2018	Draft IM amendment for accelerated depreciation
6 Sep 2018	Process update published
5 Nov 2018	DPP introductory workshop
8 Nov 2018	Final IM amendment for accelerated depreciation
9 Nov 2018	Initial information gathering (s 53ZD) request on quality of service data (for date up to 31 March 2018, unaudited)
15 Nov 2018	Issues paper and initial financial model published

Table 6.2 Dates for future DPP3 consultation steps

Date	Publication/event
20 Dec 2018	Submissions due on the issues paper (five weeks)
31 Jan 2019	Cross-submissions due on the issues paper (six weeks)
Feb/Mar 2019	Issue-specific workshop(s) following issues paper
1 Mar 2019	Final date for the submission of applications for accelerated depreciation
31 Mar 2019	AMP updates for the 2019-2029 period disclosed
May 2019	Draft DPP decision
Jul 2019	Submissions due on the draft DPP decision (eight weeks)
Aug 2019	Cross-submissions due on the draft DPP decision (four weeks)
Aug 2019	Final information gathering (s 53ZD) request on quality of service data (for data up to 31 March 2019, audited)
Sep 2019	Information disclosure data for the year ending 31 March 2019 available
Oct 2019	Updated draft DPP3 decision
28 Nov 2019	Final DPP3 decision published

Issues paper

6.3 As discussed in Chapter 1, the purpose of this issues paper is to explain our framework for considering changes when resetting the DPP, and to consult on potential issues we have identified in advance of the draft decision. Details on the submission process are discussed below from paragraph 6.10.

Draft DPP3 decision

6.4 We intend to publish a full draft DPP decision in May 2019. This draft decision will build on the material discussed in this paper and on submissions we receive in response.

6.5 The draft decision will include:

6.5.1 a reasons paper setting out and explaining the indicative starting prices, rates of change, quality standards, and incentives to improve performance and efficiencies, which we propose should apply to EDBs for DPP3;

6.5.2 the financial model used to determine starting prices;

6.5.3 the forecasts of operating and capital expenditure that the financial model is based on;

6.5.4 any quality of service models used to determine quality standards;

6.5.5 the draft DPP3 determination; and

6.5.6 any associated changes to Information Disclosure and Input Methodology determinations necessary to implement the DPP.

6.6 The draft decision will be based on the data available to be considered in advance of the draft. This includes:

6.6.1 the initial conditions for the financial model, quality of service information, and other historical data up to 31 March 2018;

6.6.2 the March 2018 AMP forecasts; [79] and

6.6.3 the cost of capital determined for information disclosure purposes on 31 July 2018.

6.7 The draft decision will be followed by an eight-week submission window and a four-week window for cross-submissions. This may include a question and answer session or workshop where there are specific issues that require further discussion.

Updated draft decision

6.8 Between the draft and final decisions, we intend to publish an updated draft decision. This will include:

6.8.1 a suite of models updated for data up to 31 March 2019 (the same data we will use for the final decision);

6.8.2 technical consultation on the drafting of the DPP3 determination; and

[79] While the 2019 AMPs will be available shortly before the draft decision, there is not sufficient time for us to adequately assess them between their publication in early April, and the draft decision in mid-May.

6.8.3 further consultation on any unresolved policy issues (if necessary).

Final decision

6.9 We will publish our final DPP3 decision by 28 November 2019 confirming the starting prices, rates of change, quality standards, and incentives to improve performance and efficiencies that will apply to EDBs for DPP3.

How you can provide your views

Submissions on this paper

Timeframe for submissions

6.10 We welcome your views on the matters raised in this paper, and on any other matters relevant to the DPP3 reset, within the timeframes below:

6.10.1 submissions by 5pm on Thursday 20 December 2018; and

6.10.2 cross-submissions by 5pm on Thursday 31 January 2019.

Address for submissions

6.11 Responses should be addressed to:

Dane Gunnell (Acting Manager, Price-Quality regulation)
c/o regulation.branch@comcom.govt.nz

6.12 Please include "EDB DPP3 reset" in the subject line of your email. We prefer submissions in both a format suitable for word processing (such as a Microsoft Word document) as well as a 'locked' format (such as a PDF) for publication on our website.

Confidential submissions

6.13 While we discourage requests for non-disclosure of submissions so that all information can be tested in an open and transparent manner, we recognise that there may be cases where parties that make submissions wish to provide information in confidence. [80] We offer the following guidance:

[80] Parties can also request that we make orders under section 100 of the Act in respect of information that should not be made public. Any request for a section 100 order must be made when the relevant information is supplied to us, and must identify the reasons why the relevant information should not be made public. We will provide further information on section 100 orders if requested by parties. A key benefit of such orders is to enable confidential information to be shared with specified parties on a restricted basis for the purpose of making submissions. Any section 100 order will apply for a limited time only as specified in the order. Once an order expires, we will follow our usual process in response to any request for information under the Official Information Act 1982.

6.13.1 If it is necessary to include confidential material in a submission, the information should be clearly marked, with reasons why that information is confidential.

6.13.2 Where commercial sensitivity is asserted, submitters must explain why publication of the information would be likely to unreasonably prejudice their commercial position or that of another person who is the subject of the information.

6.13.3 Both confidential and public versions of the submission should be provided.

6.13.4 The responsibility for ensuring that confidential information is not included in a public version of a submission rests entirely with the party making the submission.

6.14 We request that you provide multiple versions of your submission if it contains confidential information or if you wish for the published electronic copies to be 'locked'. This is because we intend to publish all submissions on our website. Where relevant, please provide both an 'unlocked' electronic copy of your submission, and a clearly labelled 'public version'.

Workshops

6.15 As indicated in our 6 September 2018 process update paper, we intend to hold issue-specific workshop(s) following submissions and cross-submissions on the issues paper.

6.16 We anticipate these workshops will focus on common themes raised by multiple parties in submissions and will determine the exact topics in early February 2019. If there are particular topics you consider would merit discussion, you are welcome to indicate as such in your submission in response to this paper, or via email to the Commission.

Attachment A Forecasting operating expenditure

Purpose of this attachment

A1 The purpose of this attachment is to:

A1.1 summarise how we forecast operating expenditure in the DDP2 reset for price-quality regulated EDBs; and

A1.2 identify the potential issues relating to setting the operating expenditure forecasts for price-quality regulated EDBs in DPP3.

A2 An operating expenditure allowance is forecast to inform the allowed revenue for each EDB and to also ensure the expectation of a reasonable return over the regulatory period. Our operating expenditure forecasts are also subject to efficiency incentives via the IRIS, as discussed in Attachment E.

Summary of what we are considering for DPP3

A3 We are proposing to retain the general approach used to forecast operating expenditure as that used for the DPP2 reset, consistent with our intention to retain approaches from DPP2 where they remain fit for purpose. This approach involves taking a base level of operating expenditure, carrying this forward by certain trend factors, and applying any known step changes, commonly referred to as the 'step and trend' approach.

A4 This section summarises what we are considering when setting the parameters for forecasting operating expenditure using the step and trend approach. The rest of this attachment then discusses each consideration in more detail, including an outline and assessment of our current approach to forecasting operating expenditure.

A5 We are proposing to use actual operating expenditure for the 2019 disclosure year as the base level of operating expenditure.[81]

A6 We are seeking reasons and evidence for any likely step changes applicable to the electricity distribution industry between 2019 and 2025.

[81] The current operating expenditure incremental rolling incentive scheme (IRIS) relies on a step and trend approach using year 4 of the regulatory period as the base level. Refer Attachment E for discussion on IRIS

A7 We are proposing to retain the general econometric approach to forecasting operating expenditure growth due to network scale growth. To forecast the inputs currently used to determine network scale growth, we are considering as options:

A7.1 using regional population growth forecasts to forecast the growth in installation control points (ICP) and historical line length growth to forecast line length growth; or

A7.2 using forecast new connections disclosed in EDBs' 2019 asset management plans (AMPs) to forecast ICP growth; and or

A7.3 acquiring forecast line length growth from EDBs via an information request under section 53ZD of the Act.

A8 We are exploring further disaggregation of the operating expenditure forecast from network and non-network to the operating expenditure categories disclosed in information disclosure, and applying drivers for each category. For example:

A8.1 Is there an inverse relationship between capital expenditure and operating expenditure attributable to asset replacement and renewal?

A8.2 Is there a positive relationship between vegetation management operating expenditure and overhead line length?

A9 We are considering an operating expenditure partial productivity factor of 0%, however, we are seeking any evidence for deviating from this assumption.

A10 We are proposing to retain a weighted average of the all-industries labour cost and producer price indices to calculate nominal operating expenditure over DPP3.

A11 We are aware of changes to the accounting treatment of operating leases. Operating leases are currently treated as an operating expenditure. However, from 1 January 2019 these leases will be capitalised (included as capital expenditure). Attachment E discusses the options we have considered regarding this change in treatment.

Our current approach to setting the operating expenditure forecast

A12 For the DPP2 reset, we forecast operating expenditure for each EDB by projecting forward actual operating expenditure. We then modelled the impact of the following three factors on each EDB's operating expenditure:

A12.1 network scale – changes in the scale of the network affect operating expenditure due to changes in the level of service provided;

A12.2 partial productivity – changes in productivity change the amount of operating expenditure needed to provide a given level of service; and

A12.3 input prices – changes in input prices affect the cost of providing a given level of service.

A13 We considered it appropriate to forecast operating expenditure in this way because most operating expenditure relates to activities that typically recur. As such, the expenditure is likely to be repeated regularly, and can be expected to be influenced by certain known and predictable factors.

Initial level of operating expenditure

A14 The initial level of operating expenditure we used for the DPP2 was the average of the disclosed 2013 and 2014 operating expenditures.

A15 An averaging approach was used as we were concerned that 2014 operating expenditure for many EDBs was relatively high. We did not have an incentive scheme in place at the time of the November 2012 reset and we were concerned about the risk of distributors advancing or deferring expenditure to 2014, or artificially inflating expenditure in that year.

Step changes in operating expenditure

A16 We considered that no step changes, other than the removal of legal costs associated with the IM merits appeal, met the criteria set out for accepting a step change.[82]

A17 To qualify for consideration, any step changes in operating expenditure had to:

A17.1 be significant;

A17.2 be robustly verifiable;

A17.3 not be captured in the other components of our projection;

A17.4 be largely outside the control of the distributor; and

A17.5 in principle, be applicable to most, if not all, distributors.

A18 These criteria were put in place to ensure operating expenditure reflects efficient expenditure and did not result in double-counting of operating expenditure, while at the same time also being consistent with the relatively low-cost nature of the DPP.

[82] Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020 – Low cost forecasting approaches" (28 November 2014) paragraph 3.40.

Network scale growth

A19 To estimate the impact of changes in network scale on operating expenditure, we separately modelled the relationship between operating expenditure and network scale for:

A19.1 expenditure operating the network (network operating expenditure); and

A19.2 expenditure to support network operations (non-network operating expenditure).

A20 To estimate the impact of changes in network scale on each category, we used an econometric model to understand the relationships observed across the industry. Using econometric modelling, we identified two variables that appear to explain a reasonable proportion of changes in operating expenditure—changes in network length and changes in the number of connections. Based on econometric modelling at the time:

A20.1 A 1% change in the length of the network was associated with a 0.44% change in network operating expenditure holding the number of connections fixed, on average;[83]

A20.2 A 1% change in the number of connections was associated with a 0.49% increase in network operating expenditure holding network length fixed, on average;[84] and

A20.3 A 1% change in the number of connections was associated with a 0.82% change in non-network operating expenditure, on average.[85]

A21 Changes in network length were forecast by extrapolating historical trends for each distributor.

A22 Changes in connection numbers were forecast by using regional population growth forecasts as a proxy and tailoring those forecasts to the area served by each EDB.

[83] Updated econometric modelling suggests a 1% change in network length is associated with a 0.48% change in network operating expenditure.

[84] Updated econometric modelling suggests a 1% change in the number of connections is associated with a 0.45% change in network operating expenditure.

[85] Updated econometric modelling suggests a 1% change in the number of connections is associated with a 0.81% change in non-network operating expenditure.

Operating expenditure partial productivity

A23 We assumed a -0.25% annual change in operating expenditure partial productivity for the current regulatory period for all distributors. Our analysis was undertaken by Economic Insights and was informed by historical changes in partial productivity for New Zealand and overseas distributors but also considered future expectations of productivity growth.

A24 While it was noted that historical partial productivity appeared to be much lower than -0.25% there were other factors that were considered at the time:

A24.1 Partial productivity growth may be underestimated because of step changes in expenditure not associated with productivity;

A24.2 The potential adverse incentives created by adopting a negative growth rate which may entrench declines in partial productivity and weaken incentives to improve efficiency. Continuing productivity decline is not typically a feature of workably competitive markets; and

A24.3 There have been generally positive improvements in productivity in the electricity distribution industry overseas. For example, operating expenditure partial productivity in the US was estimated to have improved by 1.5% annually over a similar period.[86]

A25 Ultimately, regulatory judgement was used to determine the partial productivity figure based on the qualitative and quantitative evidence available.

Input price growth

A26 Operating expenditure was inflated from constant prices to nominal prices over the current regulatory period using a weighted average of:

A26.1 forecast changes in the all-industries labour cost index (60%); and

A26.2 forecast changes in the producer price index (40%).

[86] Economic Insights "Electricity Distribution Industry Productivity Analysis: 1996–2013" (30 October 2014) pages 30–31.

Performance of operating expenditure forecast

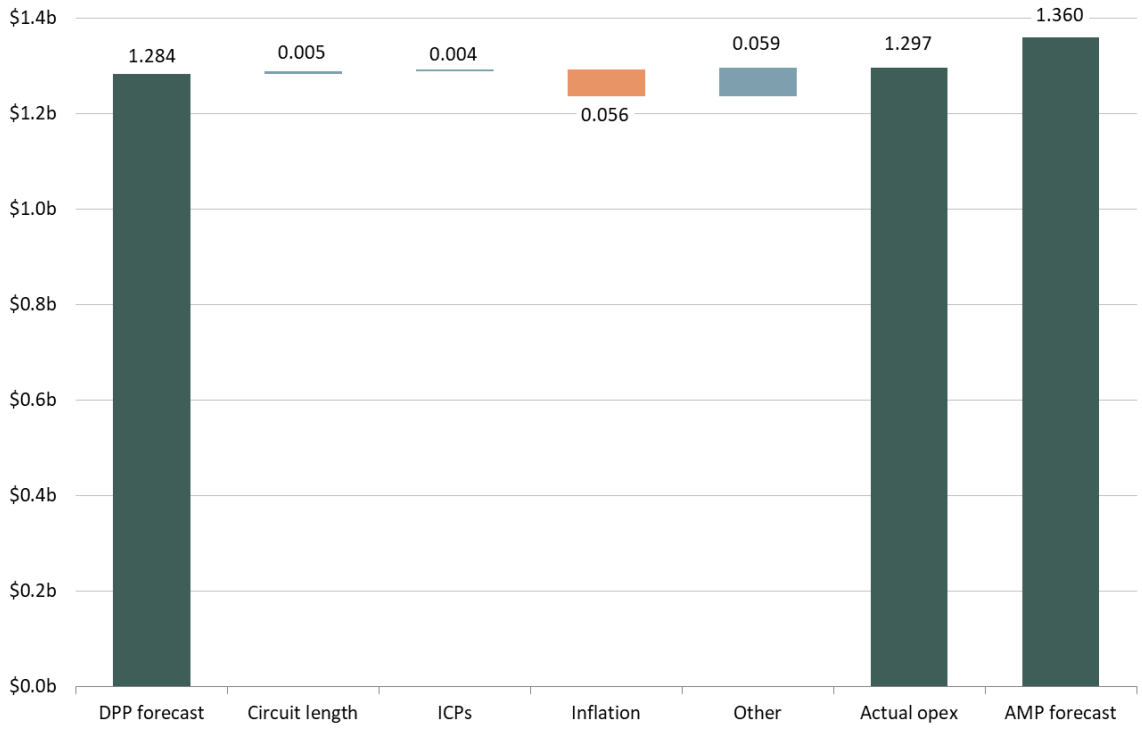
A27 Figure 1 below shows the differences between our forecast of operating expenditure and actual operating expenditure for the current regulatory period to date. After accounting for forecast errors relating to trend and price inflators, there is $59m (4.6%) of the DPP operating expenditure forecast left unexplained. It should be noted that some of this unexplained difference may be accounted for by:

A27.1 partial productivity being different from what was forecast;

A27.2 econometric drivers deviating from actuals; and/or

A27.3 any step changes not accounted for.

Figure A1 Deviations between DPP forecast and actual operating expenditure, 2016–2018 ($b)



High-level considerations for DPP3

A28 We are proposing to maintain the current step and trend approach, using actual operating expenditure as disclosed in 2019 (year four of the current regulatory period) as the base expenditure level.[87] However, we will consider tweaking aspects of determining the steps and trends, as discussed separately.

A29 We still consider this approach appropriate as most operating expenditure relates to activities that typically recur. Scale growth, productivity, price inflation, and step changes driving changes in operating expenditure can be built into the step and trend approach separately. For these reasons, we are not proposing considering changing our high-level approach to forecasting operating expenditure.

A30 Furthermore, with the introduction of the operating expenditure IRIS, any concerns that an EDB may be incentivised to advance, defer, or ramp up expenditure in any given year have been alleviated.[88]

Step change considerations

A31 Step changes provide a mechanism to include known and predictable operating expenditure changes common to the industry that are not already captured in the base level.

[87] For the draft decision we propose using forecast 2019 operating expenditure as disclosed in the EDBs' 2019 asset management plans.

[88] For example, if an EDB were to artificially increase operating expenditure in 2019 its allowance will be artificially higher, however, this will be negated by large IRIS penalties. For further discussion on our considerations for IRIS refer to Attachment E.

A32 We are not aware of any necessary step changes to the operating expenditure forecasts at this stage. However, we seek reasons and evidence for any likely step changes applicable to electricity distributors between 2019 and 2025, noting that step changes may be an increase or a decrease. Like the previous reset, we consider that an application for a step change should:

A32.1 be significant;

A32.2 be robustly verifiable;

A32.3 not be captured in the other components of our projection;

A32.4 be largely outside the control of the distributor; and

A32.5 in principle, be applicable to most, if not all, distributors.

A33 For significant step changes that are EDB-specific, a customised price-quality path application may be made.

Network scale growth considerations

A34 Network scale factors, such as line length and customer numbers, are drivers of operating expenditure. As a network grows (or shrinks) it is expected that, all else being equal, operating expenditure requirements will also increase (or decrease).

A35 We are proposing to retain our approach of using econometric modelling to assess the impact of scale growth on operating expenditure. However, we are considering various options of forecasting the scale growth inputs including:

A35.1 using regional population growth forecasts to forecast ICP growth and historical line length growth to forecast line length growth;

A35.2 using forecast new connections from 2019 AMPs to forecast ICP growth and historical line length growth to forecast line length growth; and

A35.3 using forecast new connections from 2019 AMPs to forecast ICP growth and acquiring forecast line length growth via information obtained under a s.53ZD request.

A36 To the extent that we rely more on EDB forecasts of network scale growth, we would need to cross-check its forecasts for reasonableness. At a minimum this would likely involve testing against our current methodologies for forecasting scale growth.

A37 We are also intending to explore further disaggregation of network and/or non-network to the operating expenditure categories currently required to be disclosed in information disclosure and what the drivers for each category would be. This is now a practical consideration as we have six years of data under the current information disclosure requirements.

A38 Using econometric analysis, we are proposing to test the growth drivers for each category of operating expenditure. We would welcome your views as to the practicality of using the operating expenditure categories from information disclosure, and drivers of these. We are also keen to receive feedback on whether there is:

A38.1 an inverse relationship between capital expenditure and operating expenditure attributable to asset replacement and renewal?

A38.2 a positive relationship between vegetation management operating expenditure and overhead line length?

Partial productivity considerations

A39 As technology and processes evolve it is expected that the delivery of operating expenditure projects will become more productive. As productivity increases (or decreases) the operating expenditure requirements (inputs) to fulfil the same projects (outputs) will decrease (or increase).

A40 We are proposing an operating expenditure partial productivity of 0% at this early stage. However, we will be seeking evidence (including through submission) for deviating from this assumption and welcome any evidence from submitters.

A41 Any evidence or analysis of operating expenditure partial productivity should ideally be forward-looking.

Operating expenditure price inflation considerations

A42 The financial model, for which forecast operating expenditure is an input, is expressed in nominal dollars. Therefore, for consistency, our operating expenditure forecasts need to be converted to nominal dollars.

A43 Previously, we have considered it appropriate to use an operating expenditure specific inflator to convert to nominal dollars, rather than using CPI. This was due to operating expenditure prices growing at a different rate to general prices. We consider that this approach is still appropriate.

A44 For determining the operating expenditure inflator, we are proposing to retain a weighted average of the all-industries labour cost and producer price indices. We note that inflation indices for this regulatory period to date has been significantly lower than forecast. The following table shows the forecast inflators against the actual inflators.

Table A1 Price inflators, 2014–2018

	Forecast, all-industries	Actual, all-industries	Actual, EGWW[89]
Labour cost index	2.28%	1.67%	1.65%
Producer price index	3.00%	0.76%	1.17%
Derived operating expenditure index	2.56%	1.31%	1.46%
Consumer price index	2.10%	0.98%	n/a

A45 We estimate that, all else being equal, the lower than forecast price indices had a 4.3% ($56m across the price-quality regulated distributors) impact on operating expenditure, and this is consistent across all EDBs. As shown in Figure 1, this has had the biggest impact on our operating expenditure forecasts.

A46 As CPI was also similarly under-forecast, the impact on the inflation-adjusted revenue allowances for the regulatory period is somewhat negated. However, we are mindful that as operating expenditure allowances for IRIS are set nominally, differences between actual and forecast inflation can result in unwarranted penalties or rewards.

[89] Electricity, Gas, Waste, and Water.

A47 For inflating operating expenditure, we have previously considered:

A47.1 using a combination of the all-industries forecast labour cost growth and producer price growth;

A47.2 using a combination of the electricity, gas, water, and waste (EGWW) forecast labour cost growth and producer price growth;

A47.3 the implied forecast operating expenditure inflation as taken from an EDBs asset management plan; or

A47.4 using CPI.

A48 Some EDBs have previously supported using EGWW inflators as these indices are more reflective of the labour and production price growth experienced within the industry. However, as shown in Figures A2 and A3, EGWW inflators are much more volatile than the all-industries inflators and consequently much harder to forecast. We also note that over the last four years, on average, there was only a small discrepancy between the EGWW specific inflator and the all-industries inflator for operating expenditure, as illustrated in Table A1.[90]

Figure A2 Labour cost inflation

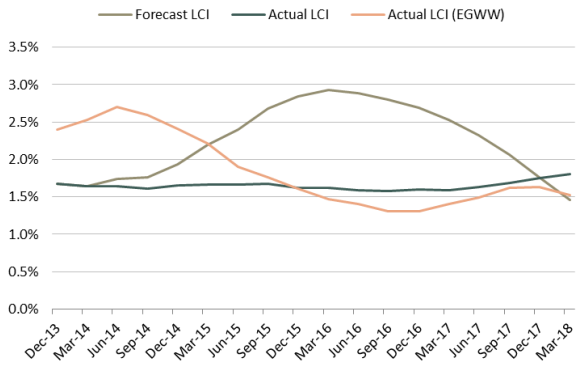
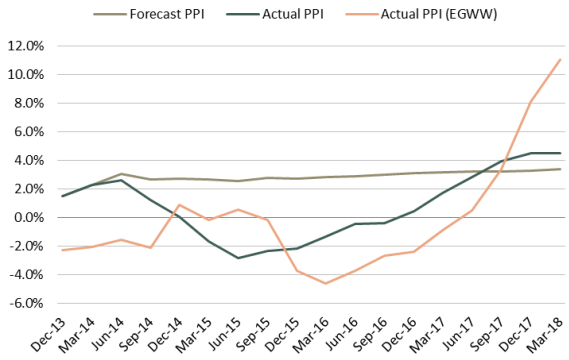


Figure A3 Producer price inflation



A49 We are also aware some distributors may be concerned with larger cost increases due to potential labour shortages within the industry in their region. We welcome views as to how this could be assessed, how accurate they would be, and the whether this is appropriate under a DPP setting.

[90] The electricity, gas, water and waste services labour cost index is composed of a sample of 30 employers, half of which are electricity distribution businesses. Using an index that is, to a large extent, determined by the performance of the regulated businesses may weaken incentives to improve efficiency.

Attachment B Forecasting capital expenditure

Purpose of this attachment

B1 This attachment explains what we are considering with respect to forecasting EDB capital expenditure for the DPP3 period.

B2 To set starting prices and to apply the capital expenditure incentive during the regulatory period, we must set a forecast value of commissioned assets for each EDB over this period.[91] This forecast is a material variable in determining the revenues EDBs may earn during the DPP period – affecting their profitability, incentives to invest, and ability to deliver services at a level of quality that consumers demand.

Summary of this attachment

B3 This attachment first discusses the reasons we need to forecast capital expenditure, and the effects that this can have on EDB performance. It then discusses the approach we have taken in previous regulatory periods (for both EDBs and in other sectors), how these forecasts have performed, and how they could be improved.

B4 The final sections then move through each major component of our capital expenditure forecasts, discusses potential issues with them, and options for how they could be improved. These major components are:

B4.1 the overall basis for capital expenditure forecasts;

B4.2 the way in which capital expenditure forecasts are disaggregated;

B4.3 the type and degree of scrutiny we apply;

B4.4 how we inflate capital expenditure forecasts to nominal terms;

B4.5 other components of our value of commissioned assets forecasts; and

B4.6 the treatment of purchases of 'spur assets' from Transpower.

Approach to capital expenditure forecasts in the current DPP

B5 This section explains the approach we have taken to forecasting capital expenditure in previous DPP resets and assess the performance of past EDB DPP capital expenditure forecasts.

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[91] *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26 (consolidated 3 April 2018) , clause 3.3.

Previous approaches to capital expenditure forecasting

Approach in EDB DPP2

B6 Our approach to forecasting capital expenditure for EDB DPP2 is set out in our 2014 Low-cost forecasting approaches paper.[92] Briefly, this approach included:

B6.1 relying on EDB constant-price AMP capital expenditure forecasts, subject to a cap based on historical expenditure;

B6.2 using a five-year 2010-2014 historical reference period;

B6.3 forecasting network and non-network capital expenditure separately;

B6.3.1 applying a uniform 120% cap to network capital expenditure (assessed net of capital contributions);

B6.3.2 applying a linear 'sliding scale' cap for non-network capital expenditure, with a maximum cap of 200% where non-network capital expenditure was less than 5% of total capital expenditure, and a minimum of 120% where non-network capital expenditure was more than 25% of total capital expenditure;

B6.4 inflating constant prices capital expenditure forecasts to a nominal forecast series using NZIER's forecast of the all-industries capital goods price index (CGPI);

B6.5 including an explicit allowance for forecast cost of financing and forecast value of vested assets; and

B6.6 assuming forecast value of commissioned assets was the same as forecast capital expenditure.

Approach in the gas pipeline DPP in 2017

B7 Gas pipeline businesses (GPB) (distribution and transmission businesses) are also subject to a DPP which requires us to produce capital expenditure forecasts. In forecasting capital expenditure for the 2017 GPB DPP reset, we took an approach which applied a higher level of scrutiny to AMP forecasts. This approach is detailed in our GPB final reasons paper and included: [93]

B7.1 comparing category level AMP forecasts to a historical baseline;

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[92] Commerce Commission, "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020 – Low cost forecasting approaches" (28 November 2014), Chapter 4.

[93] Commerce Commission, "Default price-quality paths for gas pipeline businesses from 1 October 2017 – Final Reasons Paper" (31 May 2017).

B7.2 a series of quantitative and qualitative assessments of material contained in the AMP;

B7.3 an opportunity for GPBs to provide further information where the AMP did not justify the forecast expenditure; and

B7.4 the use of a 'fall-back' to historical levels of expenditure where it could not be justified.

Assessment of our current approach

How we measure the performance of our forecasts

B8 When assessing the success of our current forecasting approach, we are (as always) measuring this against the factors set out in the Part 4 purpose statement and the purpose of default/customised price-quality regulation.[94] Specifically, for capital expenditure, we see this as meaning:

B8.1 capital expenditure forecasts allow EDBs sufficient revenue to invest to maintain, expand, and enhance their networks to deliver services at a level that meets consumer demand while earning a normal return on their investment;

B8.2 capital expenditure incentives during the period provide an incentive for EDBs to improve the efficiency of their investments, and share any gains from these efficiencies with their consumers; and

B8.3 the approach we take to capital expenditure forecasting in the DPP remains relatively low-cost and takes account of the EDBs ability to apply for a CPP.

B9 In practice, the accuracy of the forecasts we set over all and for each EDB can be used as an indicator (albeit a partial one) of these first two goals. Additionally, assessing capital expenditure on a unit-cost basis can help with assessing whether apparent increases or decreases in efficiency are actually being driven by improvements in efficiency, or are instead being driven by higher or lower forecast delivery (for example of new connections, capacity upgrades, or of replaced assets).

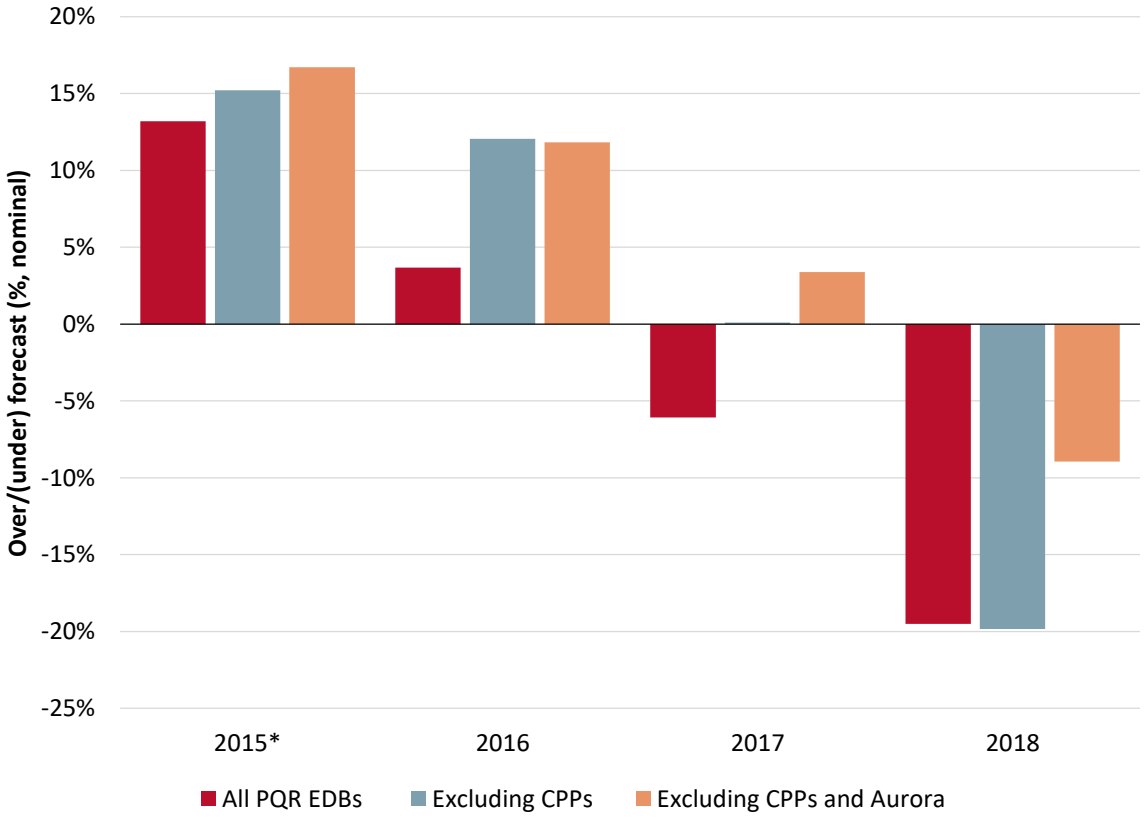
Forecast accuracy

B10 Overall, during the current period our capital expenditure forecasts have had mixed performance. Figure B1 shows the year-on-year accuracy of our DPP2 over the industry as a whole and with EDBs who have applied for CPPs excluded. On the one hand, in each of the first two years of the period, capital expenditure for the industry as a whole was within approximately 5% of our DPP forecasts.

[94] Commerce Act 1986, sections 52A and 53K

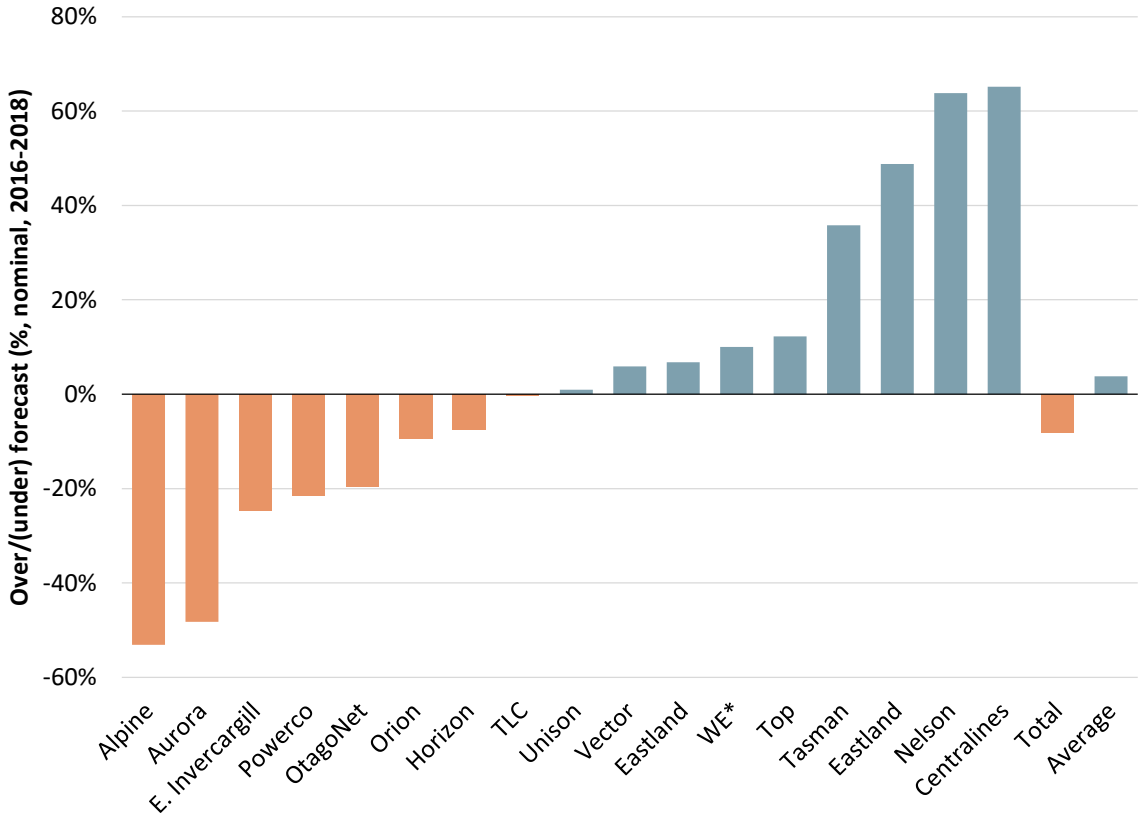
B11 However, in 2018, even excluding EDBs who have applied for or who intend to apply for CPPs, capital expenditure was significantly under forecast. Given the drivers of this difference discussed below in Figure B2, we consider that this trend is likely to continue.

Figure B1 DPP2 capital expenditure forecast performance - overall[95]



[95] * Forecasts for 2015 (the final year of the DPP2 period) we used in our 2014 capital expenditure model but were 'washed-up' by the capex wash-up mechanism, and so do not affect EDB's profitability.

Figure B2 DPP2 capital expenditure forecast performance – individual EDBs 2016-2018



B12 When looked at on an individual EDB basis (shown in Figure B2) there is a wide variance in forecast performance. In aggregate over the three years of the DPP2 period so far, this ranges from a 53% under-forecast for Alpine Energy, to a 65% over-forecast for Centralines.

Drivers of capital expenditure forecast differences

B13 When analysing these differences there are three key factors to assess, which are also the three core components of the original DPP2 forecasts:

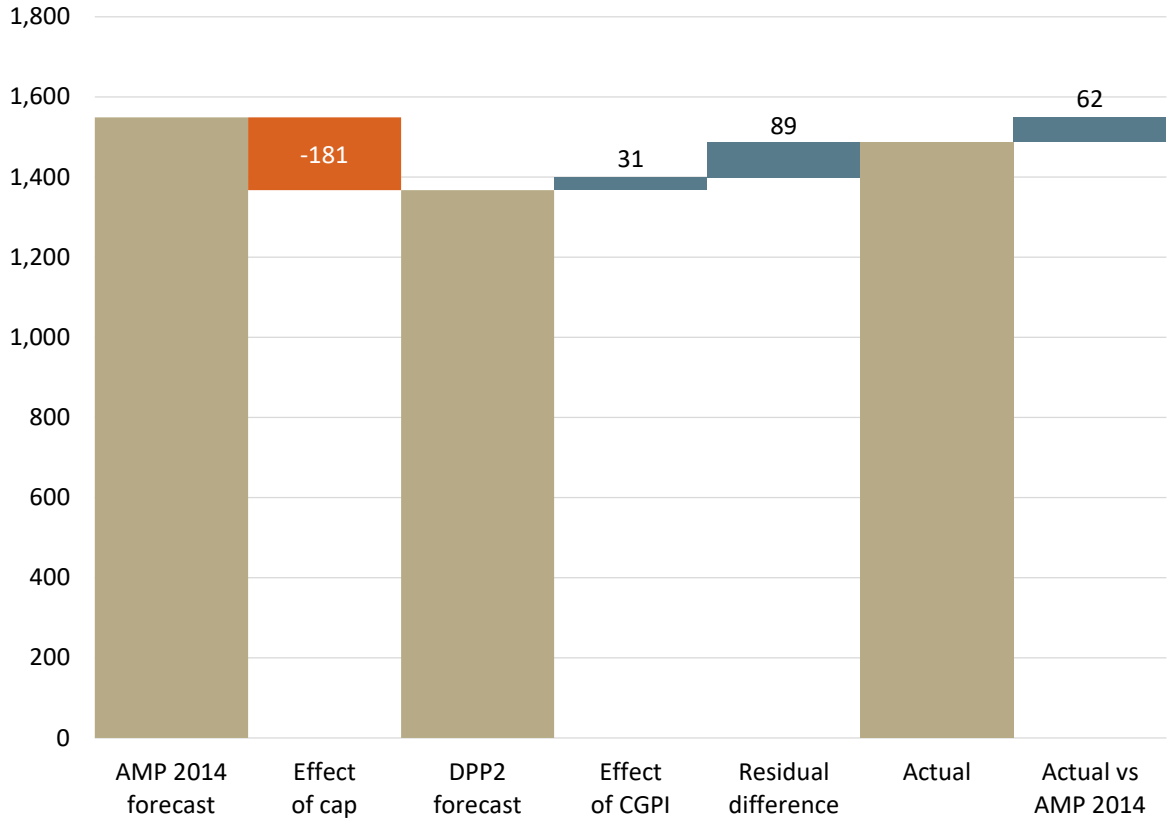
B13.1 the accuracy of EDB AMP forecasts;

B13.2 the effect of the caps placed on network and non-network capital expenditure; and

B13.3 the impact of the CGPI inflation series.

B14 Each of these is broken down in Figure B3 below.

Figure B3 Impact of major forecast components on forecast accuracy[96]



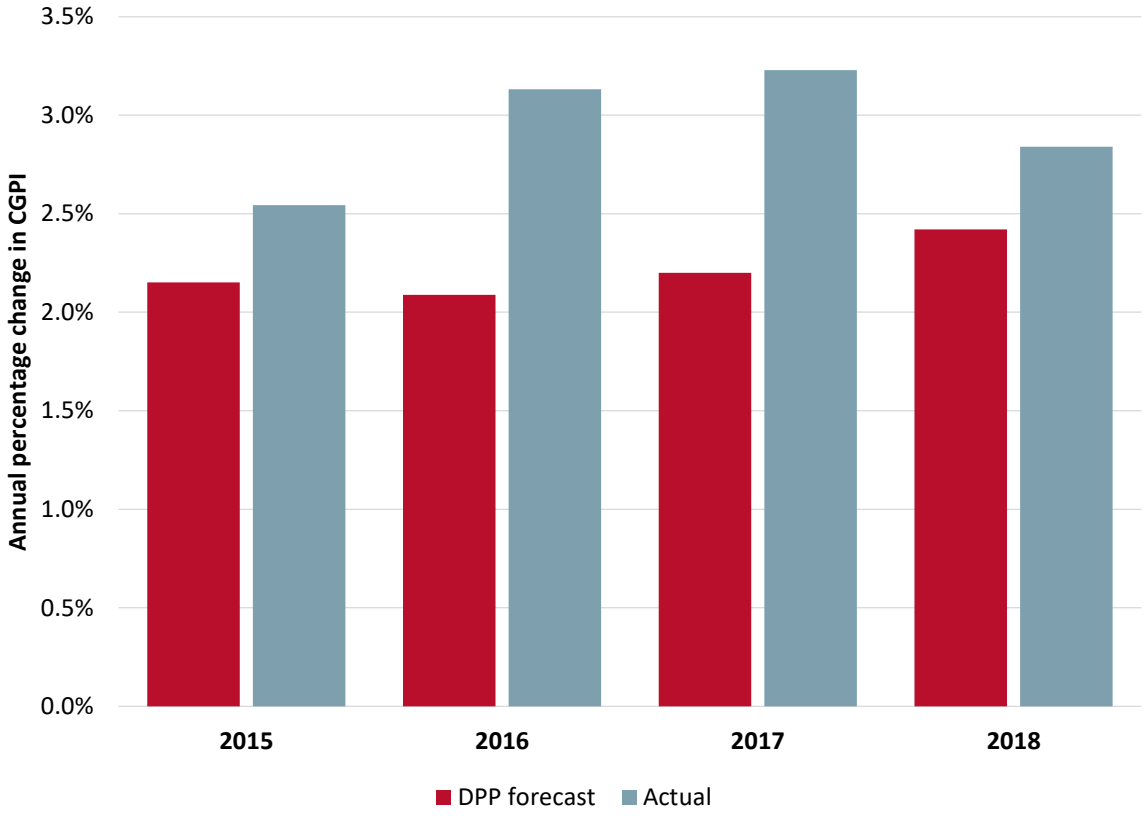
B15 The cap we applied in DPP2 and the use of independent CGPI forecasts rather than EDBs' cost escalators had the effect of reducing EDB capital expenditure forecasts relative to AMP forecasts by $181 million over the three years of the period so far (2016-2018).[97]

B16 Relative to our DPP2 forecasts, actual capital expenditure has been $119 million higher over the same period, with $31 million of that difference explained by input prices rising faster than forecast (see Figure B4), and $89 million being driven by other factors. Across the DPP so far, actual capital expenditure has been $62 million lower than EDBs forecast in their 2014 AMPs.

[96] Includes all price-quality regulated EDBs, except for Orion who were subject to a CPP when the 2014 DPP was set.

[97] The values do not sum to $120 million due to rounding.

Figure B4 Comparison of DPP2 forecast of CGPI and actual CGPI



Overall approach to capital expenditure forecasts

B17 We consider that the approach we took in DPP2, where we used EDB AMPs as the starting point for our forecasts, remains appropriate. We are also considering ways in which other independent forecasts or methods of scrutinising EDB capital expenditure could be incorporated into the DPP3 reset process.

B18 Other options we are considering are:

B18.1 a historical trend approach, similar to the way we forecast operating expenditure; and

B18.2 deriving our own capital expenditure forecasts, using methods such as replacement capital expenditure 'repex' modelling, econometric modelling, and/or independent forecasts of demand and customer growth.

Use of EDB AMPs

B19 Given the relatively low-cost nature of the DPP regime and EDBs' better knowledge of their own networks we still consider that AMPs are a better overall basis for capital expenditure forecasts than any we could derive ourselves. Each distributor's forecasts provide a good starting point because distributors have access to the best information on factors like:

B19.1 current and future demand drivers for distribution services (both the quantities of demand, and the level of quality expected);

B19.2 how to efficiently respond to this demand through conventional investment or through innovative approaches;

B19.3 the current and future condition of their assets and the quality and safety risks these pose; or

B19.4 the costs incurred in providing these services.

B20 We propose using the 2018 AMP as the basis of the draft decision, and the 2019 AMP Update as the basis of the updated draft and final decision.[98]

B21 However, we do not consider it appropriate to use EDB AMPs without some form of limit or scrutiny. This is in part due to the risk of deliberate over-forecasting of capital expenditure needs. As discussed by Frontier Economics when submitting on the 2014 DPP issues paper on behalf of the ENA:

> The risk with using EDBs' AMPs forecasts to set forecast capital expenditure and operating expenditure allowances is that forecast costs may systematically deviate from *efficient* costs… [O]n average, businesses' AMP forecasts have not even accurately predicted EDBs' *actual* costs. Moreover, there could be a concern that regulated businesses might inflate their forecasts intentionally, above levels that they anticipate privately, in order to secure higher cost allowances for the next regulatory period. If an asymmetry of information exists between the regulator and the businesses, the regulator may not be able to detect such behaviour.[99]

B22 Figure B5 below analyses differences between AMP forecasts and actual capital expenditure over the six AMPs which have been prepared so far under ID. These comparisons are set out on a 'current year plus' basis, where the 'current year' is the year the AMP was prepared (for example, so for the 2013 AMPs, the 2018 disclosure year is CY+5). It includes all EDBs, including those which are not subject to price-quality regulation.

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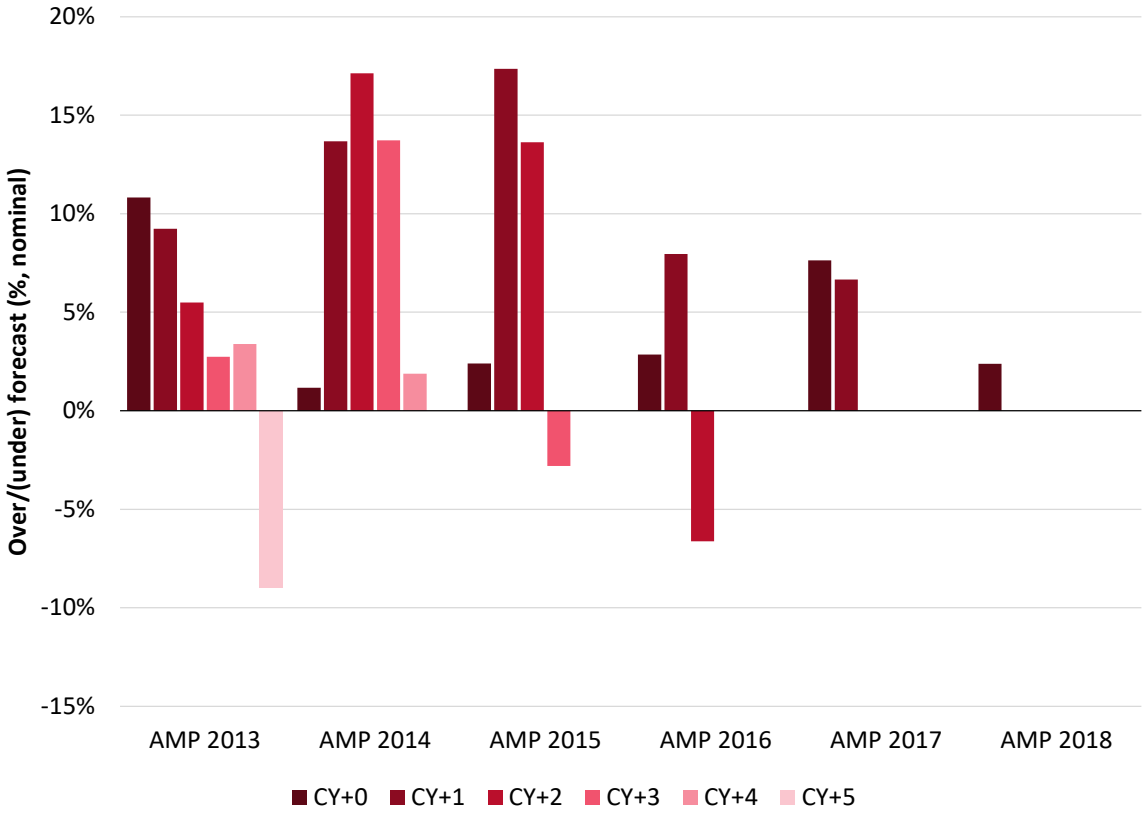
[98] Vector "Electricity Asset Management Plan 2018-2028" (June 2018), page 6; Vector "Submission on proposed process for the 2020 default price-quality path for electricity distributors" (17 July 2018), page 9.

[99] Frontier Economics (on behalf of the ENA) "Using EDB AMP forecasts under a DPP framework" (April 2014), page 8.

Figure B5 AMP forecast performance – All EDBs



B23 The persistent over-forecasting of capital expenditure by both regulated and exempt EDBs (as shown in Figure B5), suggests other factors may be influencing forecasts. These factors may include some combination of:

B23.1 optimism bias in terms of demand and/or deliverability;

B23.2 a lack of asset management maturity;

B23.3 efficient deferral of capital expenditure projects;

B23.4 efficient delivery of capital expenditure projects; or

B23.5 under-investment in the network, due to either reduced capital expenditure allowances under the DPP, or due to targeting excessive returns.

B24 Without further scrutiny in advance of the DPP3 reset, and measures to provide accountability during the regulatory period, it is difficult to disentangle these factors, and to rely on EDB AMPs alone as a basis for setting capital expenditure and revenue allowances.

Alternative options we are considering

Step and trend analysis

B25 For DPP2, we discounted a step and trend methodology for forecasting capital expenditure, as unlike operating expenditure it is subject to substantial year-on-year volatility.[100] This remains the case, so we do not consider trend approaches appropriate in isolation.

Development of independent forecasts

B26 We do not consider that we are in a position, either resource-wise or information-wise, to build a bottom-up independent forecast of capital expenditure for each EDB. To do so at this stage in the development of the regime would undermine the section 53K purpose of DPP/CPP regulation.[101] Additionally, where such models make use of comparisons between the relative performance of EDBs when delivering capital expenditure efficiently, they may be prohibited by the limit on comparative benchmarking on efficiency in section 53P(10) of the Act.[102]

B27 However, there are top-down approaches which make some use of EDB AMP data which we consider could be a useful cross-check on EDBs' capital expenditure forecasts. These are discussed in more detail below in paragraphs B41 to B63

Disaggregation of capital expenditure forecasts

B28 We may be able to more accurately forecast capital expenditure and better scrutinise EDB AMPs by looking at their forecasts at a deeper level than in DPP2. EDB forecast performance may be better in some categories with more predictable drivers than others, and there may be more reliable external cross-checks available in some cases.

B29 As such, we may have an opportunity to improve our forecasts by considering forecasts at a category level, at least in some categories.

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[100] Commerce Commission "Default price-quality paths from 1 April 2015 for 17 electricity distributors: Process and issues paper" (21 March 2014), para 2.7.

[101] Section 53K provides "The purpose of default/customised price-quality regulation is to provide a relatively low-cost way of setting price-quality paths for suppliers of regulated goods or services, while allowing the opportunity for individual regulated suppliers to have alternative price-quality paths that better meet their particular circumstances."

[102] Commerce Act 1986, section 53P(10) "The Commission may not, for the purposes of this section, use comparative benchmarking on efficiency in order to set starting prices, rates of change, quality standards, or incentives to improve quality of supply."

B30 Under information disclosure, capital expenditure forecasts are disaggregated into four levels, which form the broad options we have when assessing how to disaggregate DPP capital expenditure forecasts:

B30.1 total capital expenditure (expenditure on assets);

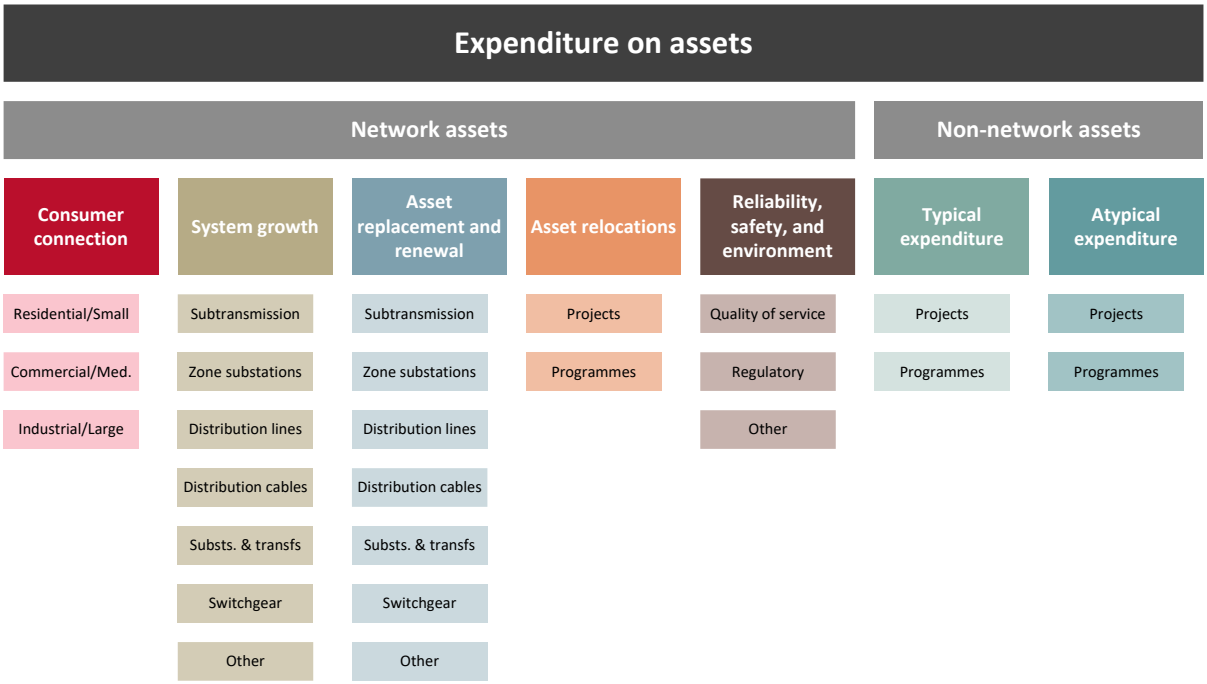
B30.2 network and non-network capital expenditure;

B30.3 expenditure categories; and

B30.4 expenditure sub-categories.

B31 The categories within each of these levels are represented in Figure B6 below. [103]

Figure B6 Illustrative hierarchy of expenditure categories used in information disclosure



[103] We have also considered the option of forecasting operating expenditure and capital expenditure together (a "totex" model). Our reasons for not preferring this approach for DPP3 are discussed further in Attachment E.

Total capital expenditure

B32 The simplest option is to forecast capital expenditure in a single aggregate total. While forecasts at this level would be the easiest to model, and face the lowest risk of modelling or data errors, we do not consider it an appropriate approach because:

B32.1 the drivers of network and non-network investment differ significantly; and

B32.2 we already have a developed model from the DPP2 reset, which reduces the cost of forecasting capital expenditure at a network/non-network level.

B33 It is important to note that while we may forecast capital expenditure at a disaggregated level, our current capital expenditure incentive mechanism (discussed in Attachment E) is assessed on a total capital expenditure level. This allows EDBs to substitute expenditure between categories without facing an incentive gain or loss, for example in choosing a more efficient non-network capital expenditure solution to a previously forecast network investment.

Network and non-network capital expenditure

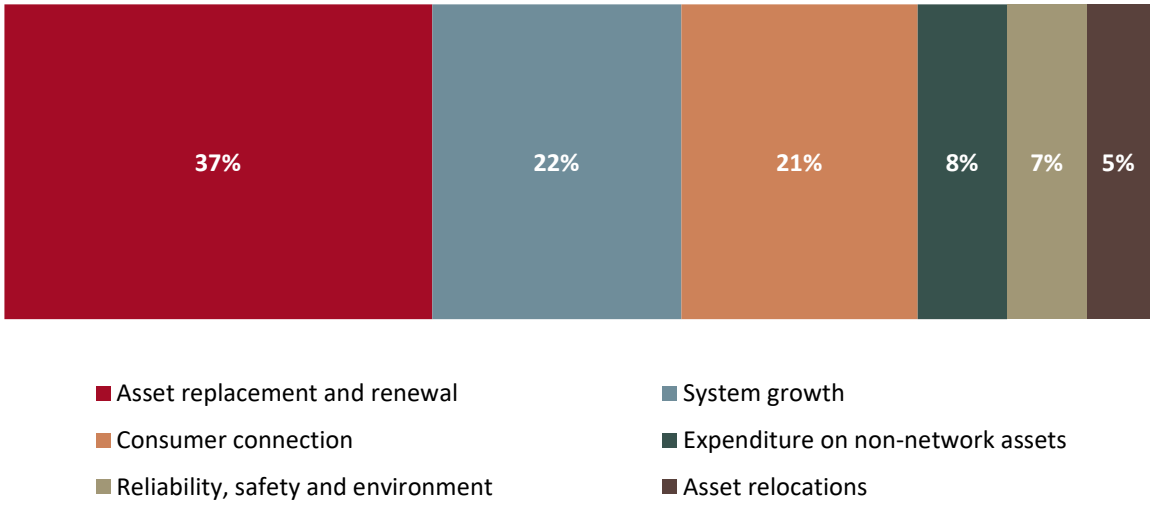
B34 The approach taken to capital expenditure forecasting in DPP2 was to break capital expenditure down into network and non-network categories. Consistent with the decision making framework discussed in Chapter 2, applying this approach again unless there is a reason to change is the starting-point for our analysis.

B35 Possible reasons for a more disaggregated split are discussed below.

Expenditure categories

B36 Considering a split to a category level, it is worth noting that there is as much difference within categories of network capital expenditure – both in terms of accuracy and drivers – as there is between network capital expenditure and non-network capital expenditure. Further, as a percentage of overall capital expenditure, non-network is only a small proportion of overall EDB capital expenditure (8% for price-quality regulated EDBs from 2013-2018).

Figure B7 Historical proportions of capital expenditure



B37 However, we must exercise caution when relying too much on forecasts at a category level: within the ID definitions, there is substantial scope for variation, and in many cases expenditure may be undertaken for more than one purpose. Where an EDB's definitions are stable over time this may not cause difficulties, but we have limited information about whether this is the case. Additionally, a more complex analysis introduces greater modelling and data risks.

B38 Analysis at a more detailed level will require additional resource – both internally and on the part of EDBs. This may still be proportionate to the price/quality impact of the expenditure on consumers, but must be weighed against competing priorities within the DPP project. This is somewhat mitigated by our prior experience in the 2017 Gas DPP, where forecasts were made at a category level.

Expenditure sub-categories

B39 Going beyond the category level and using the detailed sub-category forecast will require substantial additional effort, and in most cases will not be consistent with a relatively low-cost DPP.

B40 The possible exception to this is the different categories of consumer connection capital expenditure, where the forecasts of different classes of customer are forecast both in capital expenditure and new ICP terms, allowing for a simple comparison.

Expenditure scrutiny

B41 Given the potential problems with EDB AMP forecasts discussed above in paragraphs B20 to B24, we do not consider that we can use EDB AMP forecasts without some form of scrutiny or constraint. On the other hand, the need for the DPP to remain relatively low-cost, and the availability of a CPP to suppliers whose future capital expenditure needs depart significantly from their past needs means there are limits to what we can do in a DPP.

B42 The options we are considering fall into four broad categories. From least to most scrutiny (and cost/effort), these are:

B42.1 capping forecasts based on historical expenditure levels;

B42.2 assessing AMP capital expenditure forecasts against other material disclosed in the AMPs;

B42.3 assessing AMP capital expenditure forecasts against independently derived, external drivers; and

B42.4 qualitative analysis of AMPs and other information.

B43 We are also considering how any of the metrics we use when assessing AMP forecasts could be used to provide accountability during the regulatory period as part of a 'delivery report'. [104]

Historical cap

B44 The simplest option for limiting EDB AMP forecasts is to apply a cap to them, based on historical levels of expenditure in a given category. This was the approach taken to network and non-network capital expenditure in EDB DPP2, and was the starting point for our analysis of category level capital expenditure in GPB DPP2.

B45 Our emerging views on the main features of such a cap are discussed below.

Reference period

B46 Our starting point for the reference period is to make use of as much available data as possible given the volatility of capital expenditure in any given year (especially for smaller suppliers). This would imply using a 2010-2018 period for the draft decision and a 2010-2019 period for the final decision.

[104] For an example of the material which could be included in this kind of report, see: Commerce Commission "Final decision on Powerco's 2018-2023 customised price-quality path" (28 March 2018) Attachment K.

B47 However, there are reasons we may wish to depart from this approach. Firstly, data from before 2013 was prepared prior to the introduction of the current ID rules, and may not be comparable with forecasts in the 2018 and 2019 AMP. This would suggest using data from after 2013. Secondly, more recent years may give a better indication of future expenditure, which suggests using a rolling period of a given length (for example: five years) or relying only on data from the DPP2 period.

Forecast comparison period

B48 The forecast period over which we could apply the cap to could include one or both of:

B48.1 a year-by-year comparison, where any given year which is above the cap is limited; and/or

B48.2 a comparison over the entire period, where capital expenditure for the whole DPP3 period is limited.

Type of cap

B49 We are considering a range of options for how to calculate the cap which applies:

B49.1 a uniform percentage cap, where any expenditure beyond a certain percentage of historical capital expenditure is limited;

B49.2 a 'sliding scale cap' where the cap applied varies based on some other factor; or

B49.3 a uniform dollar value cap, where expenditure which is more than given amount above historical levels is limited.

B50 A uniform percentage cap of 120% of historical levels was applied to network capital expenditure in EDB DPP2, and a 110% cap was applied in each capital expenditure category for GPB DPP2.

B51 A sliding scale could be linked to either one or both of:

B51.1 the materiality of the category in question (as was done for non-network capital expenditure in DPP2); or

B51.2 the historical accuracy of forecasts by that supplier in that category (as was proposed for our DPP2 draft decision, but not implemented in our final decision).

B52 A cap based on the dollar value increase above historical levels could be a viable option for determining a boundary between where expenditure can be accommodated under the DPP and where it is better dealt with under a CPP. This is most likely to apply at an aggregate capital expenditure level, in conjunction with the other caps described above.

Internal ratio analysis

B53 Along with the financial forecasts in the AMP, EDBs also disclose a range of asset and network information, which is intended to help explain their capital expenditure forecasts. We can compare these 'drivers' to assess whether the forecasts are reasonable, and whether an AMP is internally consistent, which suggests more mature asset management practices.

Consumer connection

B54 For consumer connection capital expenditure, these drivers are the forecasts of new connections disclosed in Schedule 12C.[105] This may warrant disaggregation below the category level, as the costs of connecting different classes of consumer (residential, industrial, agricultural) may differ widely.

System growth

B55 For system growth capital expenditure, the drivers are the forecasts of maximum coincident system demand in Schedule 12C and the report on forecast network capacity in Schedule 12B – where EDBs disclose forecast constraints to a zone-substation level.[106]

Asset replacement and renewal

B56 For asset replacement and renewal, the drivers are asset condition (disclosed in Schedule 12A) and specifically the forecasts of assets requiring replacement within the next five years.[107] This may also include the asset age profile disclosed under Schedule 9C,[108] but that would require substantial analysis beyond a simple ratio approach.

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[105] *Electricity Distribution Information Disclosure Determination* [2012] NZCC 22 (consolidated 3 April 2018), Schedule 12C

[106] *Electricity Distribution Information Disclosure Determination* [2012] NZCC 22 (consolidated 3 April 2018), Schedule 12B

[107] *Electricity Distribution Information Disclosure Determination* [2012] NZCC 22 (consolidated 3 April 2018), Schedule 12A

[108] *Electricity Distribution Information Disclosure Determination* [2012] NZCC 22 (consolidated 3 April 2018), Schedule 9C

Other capital expenditure categories

B57 Other categories (relocations, reliability safety and environmental, and non-network capital expenditure) do not have clear, quantitative drivers disclosed in AMPs, so would need to rely on a qualitative assessment of the information in the body of the AMP. This likely goes beyond relatively low-cost scrutiny, and as these categories only compose 5%, 7% and 8% of capital expenditure respectively, it is not merited under our proportionate scrutiny approach.

External ratio analysis

B58 Beyond testing AMPs for internal coherence, we can also examine the extent to which they are consistent with reliable, independent drivers of investment. This would provide greater assurance that forecasts are reasonable, and in particular would test whether an EDB is making conservative or optimistic assumptions to increase its forecasts beyond an efficient level.

Consumer connection

B59 For consumer connection capital expenditure, external drivers could include forecast regional population growth (as applied to forecast operating expenditure trends) and GDP growth (as previously applied to forecast commercial and industrial demand for CPRG).

System growth

B60 For system growth, external drivers would include independent expert forecasts of volume growth and would be one of the main areas where careful analysis of emerging technology (for example: distributed generation or electric vehicles) would be needed.

Asset replacement and renewal

B61 For asset replacement and renewal this would require the development of a 'replacement expenditure' (repex) model, which takes a probabilistic approach to the likely lives of EDB assets. This goes beyond what is practical in a DPP but is worth considering as a baseline for future DPPs and as a summary and analysis approach.[109]

[109] Under section 53B(2) of the Commerce Act, the Commission may monitor and analyse information disclosed.

Qualitative scrutiny

B62 Finally, we have the option of making a qualitative assessment of the reasons for expenditure increases provided in the body of the asset management plan. On the one hand, the AMPs provide a rich source of information about the reasons an EDB is undertaken certain projects or programmes. However, this requires both the direct exercise of judgement on the Commission's part and, more importantly, imposes significant cost on the Commission and on EDBs responding to this assessment.

B63 Such an approach is only applicable on a by-exceptions basis, either for suppliers or categories where a quantitative assessment is not possible. More likely however, this assessment would be better done as part of a CPP application.

Table B1 Summary of AMP scrutiny options

Capex category	Historical cap	Internal drivers	External drivers
Consumer connection	Possible	Forecast connection growth	Population and GDP growth
System growth	Possible	Forecast peak demand growth and constraints	Demand growth, asset criticality
Asset replacement and renewal	Not suitable	Asset condition data or asset age profile	Repex modelling, asset criticality
Asset relocations	Possible	Qualitative assessment	None
Reliability, safety, and environment	Possible	Qualitative assessment	Regulatory change, reliability performance
Typical non-network	Possible	None	Drivers as for non-network operating expenditure
Atypical non-network	Possible	Qualitative assessment	None

Cost escalators

B64 While any assessment of AMP forecasts or capital expenditure caps are applied on a constant-price basis, the financial model depends on forecasts set on a nominal basis. As such, we need to determine a cost escalator to do this.

B65 The options we are considering are:

B65.1 retaining the use of the all-industries CGPI forecasts, either from NZIER or another provider;

B65.2 using an industry- or region-specific index;

B65.3 using the CPI;

B65.4 using EDBs' own implied inflation from their AMPs.

B66 As discussed above when reviewing the performance of our DPP2 capital expenditure forecasts, differences in the cost of EDBs inputs are responsible for approximately one-third of the forecast error over the period so far. Given this material difference, we need to consider whether the use of the all-industries CGPI remains appropriate.

B67 Without evidence, it is difficult to see a need for region-specific capital expenditure escalators. To the extent that some EDBs have a higher cost base, this will already be included in their historical expenditure. Any argument in favour of regional cost escalators would need to be phrased in terms of capital costs rising at a higher rate in a given region.

B68 Further, we would likely need to commission these forecasts ourselves, as we do not know of any 'off-the-shelf' forecasts of CGPI at a regional level.

B69 We will consider using the industry specific EGWW sub index, although as discussed in Attachment A, these have been less reliable historically, are more volatile, and may create incentive problems.

B70 To the extent that errors in the CGPI forecasts we use to inflate capital expenditure are mirrored by errors in the CPI forecasts we use to inflate the price path within the financial model, there is an off-setting effect. However, this depends on consumer price changes and capital goods price changes being reliably correlated over the medium-term, which we do not have definitive evidence of.

Other components of value of commissioned assets

B71 While the discussion in this attachment focuses mainly on capital expenditure forecasts, the financial model we use to determine starting prices, and the capital expenditure incentive mechanism operate on a value of commissioned assets basis.

B72 While capital expenditure (or more formally, expenditure on assets) forms the bulk of the value of commissioned assets, there are other components which we need to consider. These are:

B72.1 the treatment of forecast capital contributions;

B72.2 forecast value of vested assets;

B72.3 forecast cost of financing works under construction; and

B72.4 acquisitions from other regulated suppliers and transactions with related parties.

B73 The relationship between these components is set out in the two equations below.

Table B2 Relationship between components of commissioned assets[110]

Capital expenditure *= expenditure on assets*
+ cost of financing
– value of capital contributions
+ value of vested assets

Commissioned assets *= capital expenditure*
± Δ works under construction
+ acquisitions from regulated suppliers
+ asset transfers from a related party

Capital contributions

B74 Capital contributions are a substantial part of many EDBs expenditure on assets. In previous DPPs, we have set capital expenditure forecasts as forecast expenditure on assets net of capital contributions but applied no scrutiny to the level of contributions suppliers are forecasting.

B75 The two broad options we are considering for DPP3 are: assessing all capital expenditure net of EDBs' forecasts of capital contributions (effectively removing any scrutiny) and including capital contributions within the scope of our analysis.

B76 Overall, 14% of expenditure on assets historically has been funded through contributions. The proportion of expenditure funded with contributions varies by category. For consumer connection in particular, where 57% of expenditure is contribution-funded, any change in the forecast level of contributions can have a material effect on forecast capital expenditure.

[110] *Electricity Distribution Information Disclosure Determination* [2012] NZCC 22 (consolidated 3 April 2018), Clause 1.4.3

B77 Given this material influence, we consider that capital contributions should be subject to some form of scrutiny on a similar basis to the rest of EDBs' expenditure on assets.

Other components of capital expenditure

B78 In addition to expenditure on assets, EDBs also include two other minor components in their capital expenditure: the cost of financing works under construction, and the value of any vested assets.

B79 We are proposing to retain the approach taken in DPP2, where we included EDBs forecasts of these components. Where we apply a cap or some other limit to overall capital expenditure, we will likely apply an approach like we did in GPB DPP2, where cost of financing was scaled back by the same amount.

Other differences between value of commissioned assets and capital expenditure

B80 The EDB IMs direct us to forecast commissioned assets as equal to capital expenditure for the relevant year.[111] In most instances, we have assumed the difference between the two is immaterial, but there have been two recent cases which test this assumption:

B80.1 In 2015, OtagoNet included the previously independent Energy Southland network in its RAB via an 'acquisition from a regulated party'. The value of this was $9 million, or 39% of OtagoNet's commissioned assets for the year.

B80.2 In 2017, Vector Lines engaged in an asset transfer from a related party with a value of $92 million, or 37% of its commissioned assets for that year.

B81 As the capital expenditure incentive works on a value of commissioned assets basis, transactions such as these can have a material impact on EDBs' incentives and future revenues.

B82 Without further information about the scope and scale of any future transactions like this, we are not able to assess the materiality of this issue over the next period, so are interested in views from EDBs who may be contemplating such transactions.

Treatment of spur asset purchases

B83 In recent years, Transpower has had a policy of selling 'non-core' transmission grid assets (referred to as 'spur assets') to the EDB that connects to these assets.

[111] *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26 (consolidated 3 April 2018) , clause 4.2.5

B84 If we exclude these transactions from our forecasts, EDBs may be incentivised not to undertake them, leading to inefficiencies over the longer term. Where we include them but they do not go through, EDBs may earn excessive profits.

B85 In DPP2, we introduced a 'transmission asset wash-up adjustment' recoverable cost in the IMs, which will allow us to include spur asset purchases in capital expenditure forecasts, but also allow the return on/of these assets to be removed from EDB revenue if the purchase is cancelled.

B86 We also excluded this transmission asset capital expenditure from our assessment of forecast capital expenditure, as the scale of the purchase and future maintenance costs represented a significant increase above historical levels.

B87 Our emerging view for DPP3 is to retain this treatment of spur asset purchase capital expenditure, and we are interested in discussing this issue with any EDB contemplating such a transaction in future.

Attachment C Reliability standards and incentives

Purpose of this attachment

C1 The purpose of this attachment is to summarise our current approach to setting quality standards and incentives relating to reliability and the potential options we are considering for price-quality regulated EDBs in DPP3.

C2 Section 53M of the Act requires DPPs to specify the quality standards that must be met by the regulated suppliers. An important component of quality is network reliability, as measured by the duration and number of outages experienced by the average customer, known as SAIDI and SAIFI respectively.[112]

C3 Currently, our quality standards and quality incentive scheme focus solely on these two measures of quality. This attachment will focus on aggregated network reliability metrics and Attachment D will discuss other potential quality metrics for consideration in DPP3.[113]

Summary of our considerations

C4 We are considering retaining both the reliability standards and incentive scheme for DPP3, and we welcome submissions on whether to amend certain aspects of both. This section outlines our key issues with respect to:

C4.1 setting the reliability standard(s);

C4.2 setting the reliability incentive scheme;

C4.3 our methodology for normalising SAIDI and SAIFI; and

C4.4 additional reliability metrics we have considered.

C5 The rest of this attachment then discusses each in more detail, including an outline and assessment of our current approach to setting the quality standards and incentives.

Quality standards relating to reliability

C6 We invite views as to whether planned interruptions should be assigned a lower weighting or be treated as a separate quality standard.

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[112] The System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI) respectively measure the average duration and frequency of interruptions experienced by customers each year.

[113] For this attachment, quality refers to service quality in a general sense and reliability refers to the specific aspect of quality relating to interruptions of electricity supply.

C7 We are considering whether the one standard deviation buffer between the SAIDI and SAIFI limits and the SAIDI and SAIFI historical average should change.

C8 We are considering updating the reference period to the most recent 10 years, however, we are open to suggestions. We are also considering removing the most extreme years of the reference dataset.

Consideration of the two out of three rule

C9 We welcome alternative approaches for determining a quality standard contravention.

Automatic compliance contravention reporting

C10 We are considering additional reporting requirements for DPP3 when an EDB contravenes its quality standard. This would assist our understanding of the causes for contravening the quality standard, the state of its network, and the responses it has taken to address the worsening reliability performance.

Incentive scheme

C11 We are assessing the value of the revenue-linked incentive scheme for SAIDI and SAIFI. In particular, are EDBs better incentivised to provide a level of reliability that consumers desire.

C12 We are seeking views on raising the total revenue at risk from 1% to up to 5%.

C13 We are seeking views on widening the cap and collar band from one standard deviation to up to two standard deviations from the historical average, and in parallel, increasing the applicable limits to up to two standard deviations above the historical average.

C14 We are considering whether to include notifications of planned interruptions and new connection measures within the quality incentive scheme (as discussed in Attachment D

Normalisation

C15 Our emerging view is to keep using the 23rd highest daily unplanned SAIDI and SAIFI, assuming a 10-year reference period, for the boundary values.

C16 If feasible, we will consider identifying an unplanned major event day based on a rolling 24-hour period. We will also consider the practicality of aggregating multi-day events attributable to extreme weather events and disasters.

C17 We invite views on what actions are taken when a major event day is triggered. By default, we intend to retain the replacement of any major SAIDI or SAIFI event day with the applicable boundary value. This ensures there is a limit on how much risk an EDB is exposed to during a major event without removing it completely.

Other issues

C18 We are proposing an amendment to the ID determination so that the normalisation methodology of reliability metrics is consistent with the DPP methodology or can be derived.

C19 We are of the view that more transparency as to when and why a major event happened, and the impact of normalisation is warranted. This may include:

C19.1 additional reporting requirements for major events including dates, times, raw SAIDI and SAIFI values, and more descriptive causes; potentially complemented with

C19.2 increasing scope for scrutinising major events that meet a certain (yet undecided) threshold, especially if we were to relax the quality standard(s) or major event day treatment.

C20 We are considering amendments to the ID requirements to increase transparency relating to:

C20.1 interruptions on low voltage (LV) lines;

C20.2 momentary average interruptions frequency index (MAIFI);

C20.3 further disaggregation of reliability metrics; and

C20.4 lost load or lost delivery from interruptions.

Quality standard

C21 The current quality standard is intended to capture instances of potential material deterioration in the reliability of electricity distribution services delivered to consumers. Section 53M of the Commerce Act 1986 requires that we specify the quality standards that must be met by EDBs subject to price-quality regulation. A strategic priority for the upcoming DPP is to "consider whether 'no material deterioration' remains the appropriate basis for the minimum reliability standards".[114]

[114] Commerce Commission "Priorities 2018/19" (9 August 2018) page 3.

How the standard is currently specified

C22 An EDB is deemed to be non-compliant with the quality standard if it exceeds the normalised SAIDI or SAIFI limit in two out of three consecutive years. The SAIDI and SAIFI limits are set at one standard deviation above the historical average, which is the same as the SAIDI and SAIFI caps under the reliability incentive scheme.

C23 The use of a quality standard that aggregates all consumers for each distributor is a simple, cost-effective, and transparent method of applying quality standards. However, we noted that distributors should still address, where practicable, the preferences of individuals, groups, or classes of consumers.

SAIDI and SAIFI as the measures

C24 SAIDI and SAIFI are used as the measures of reliability for the purposes of the quality standard. SAIDI and SAIFI are internationally recognised and the most common method of measuring reliability. There is also a significant amount of historical SAIDI and SAIFI data available. A higher SAIDI or SAIFI represents poorer reliability performance.

Unplanned interruptions are normalised

C25 SAIDI and SAIFI reliability measures are highly susceptible to major events such as extreme storms. A boundary value has been implemented for unplanned SAIDI and SAIFI to limit the impact of such events and reduce the volatility of these measures, in order to focus on material deterioration (limiting false positives for extreme years). Our methodology for normalising major events is discussed from paragraph C75.

Lower weighting for planned interruptions

C26 A planned interruption is currently defined as being 'any interruption in respect of which not less than 24 hours' notice was given, either to the public or to all electricity consumers affected by the interruption'. In recognition that a planned interruption is likely to be less inconvenient and disruptive to a customer we implemented a lower weighting of 50% relative to unplanned interruptions. Consumers could make alternative arrangements if notified in advance that an interruption will take place.

C27 This approach is also consistent with some overseas jurisdictions where unplanned and planned interruptions are treated differently. Under the current DPP, we use the same weightings as those used by Ofgem in the UK, where a planned interruption is weighted as half that of an unplanned interruption. This approach of lowering the weighting of planned interruption was also supported by the ENA, among others.

SAIDI and SAIFI limits based on historical dataset

C28 SAIDI and SAIFI limits are set one standard deviation above the annual average of the historical dataset of the 'reference period'. The standard deviation uses the daily values during the reference period which is then annualised.

C29 The reference period is used as a baseline for setting the parameters of the compliance standards and incentive scheme parameters applicable to reliability. We used the most recent 10-year period to calculate the reliability limits because we considered that a reference period of 10 years better reflects the current underlying level of reliability performance. We considered that five years was too short to capture the underlying level of reliability.

Quality standard based on two out of three rule

C30 Currently, exceeding a SAIDI and SAIFI limit in a single year does not constitute a contravention of the quality standard. The SAIDI or SAIFI limit also needs to have been exceeded in one of the preceding two years to trigger a contravention.

Assessment of the quality standard

C31 Currently, with the reliability limits set one standard deviation above the historical 10-year average, there is around a one in 10 chance that an EDB will exceed its limits twice in any three-year period.

C32 Over this regulatory period to date, the SAIDI limit has been exceeded 17 times and the SAIFI limit nine times. There have also been eleven compliance contraventions to date with respect to the quality standard, including six in 2018. These are outlined in Table C1.

Table C1 Limits exceeded and compliance contraventions, regulatory period to date

EDB	SAIDI Limit	SAIFI Limit	Compliance contraventions
Alpine Energy	1	-	2016
Aurora Energy	3	2	2016; 2017; 2018
Eastland Network	1	-	-
Electricity Ashburton	1	1	-
Horizon Energy	2	1	2018
The Lines Company	2	1	2018
Unison Networks	2	-	2018
Vector Lines	3	2	2016; 2017; 2018
Wellington Electricity	2	2	2018

Considerations for DPP3 – Quality standard(s)

C33 We still think that some level of network deterioration as a basis for setting the reliability standard remains appropriate in principle. However, we are considering the appropriateness of material deterioration as it is currently captured due to the possible 'false positives' (contraventions of quality standards where no material deterioration in quality has actually occurred) within reasonable statistical bounds.

Treatment of planned interruptions

C34 There may be some concern regarding the incentives for reducing planned works, especially if there is a risk of contravening the quality standard. An EDB may inefficiently choose to delay or cancel planned works if it believes that the planned work will push it above the SAIDI or SAIFI limit, and even more so if it has already exceeded its limit in one of the previous two years. Delaying planned works in this way may lead to increased pressure from unplanned interruptions in future years. To address this potential concern, we consider as options:

C34.1 reducing the weighting of planned interruptions;

C34.2 removing planned interruptions from the current quality standard; or

C34.3 assessing planned interruptions as a separate standard.

C35 We also note a previous submission from Orion that our definition of a planned interruption is somewhat different to a "previous Electricity and Gas Complaints Commission Scheme requirement to provide four working days' notice, which is much more meaningful in terms of allowing consumers to prepare".[115] It is worth considering whether 24 hours' notice is enough notice for a consumer to prepare for an interruption.

C36 We have also considered the time window provided for a planned interruption. For example, advising a customer there will be planned works within a one week window is not very helpful. Likewise, planned works occurring outside of the window provided by the EDB is not particularly helpful.[116]

C37 For the quality standard we have considered as options:

C37.1 continue weighting planned interruptions by 50%;

C37.2 changing the weight of planned interruptions; and

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[115] Orion NZ "Submission on the Draft DPP Determination and related documents" (29 August 2014), paragraph 36.

[116] Attachment D, paragraph 28 considers whether further metrics involving planned interruptions could be included within the quality standards or incentive scheme.

C37.3 separating out planned interruptions as a separate standard, for example, assessed against a five-yearly target or band.

Buffer between historical average and limits

C38 With the potential to strengthen the reliability incentive scheme, as discussed from paragraph C68, there may be scope to increase the margin between the historical average and the limit to some degree. For example, if EDBs are exposed to incentives over a wider range of reliability outcomes we would consider it appropriate to extend reliability limits to match the caps.

Consideration of the two out of three rule

C39 We are considering other methods for determining a quality standard contravention that produces a statistically acceptable outcome. There are a few options which include, but not limited to, exceeding:

C39.1 an annual limit in any given year;

C39.2 an annual limit in consecutive years;

C39.3 an annual limit in two out of three years; and

C39.4 a regulatory period limit.

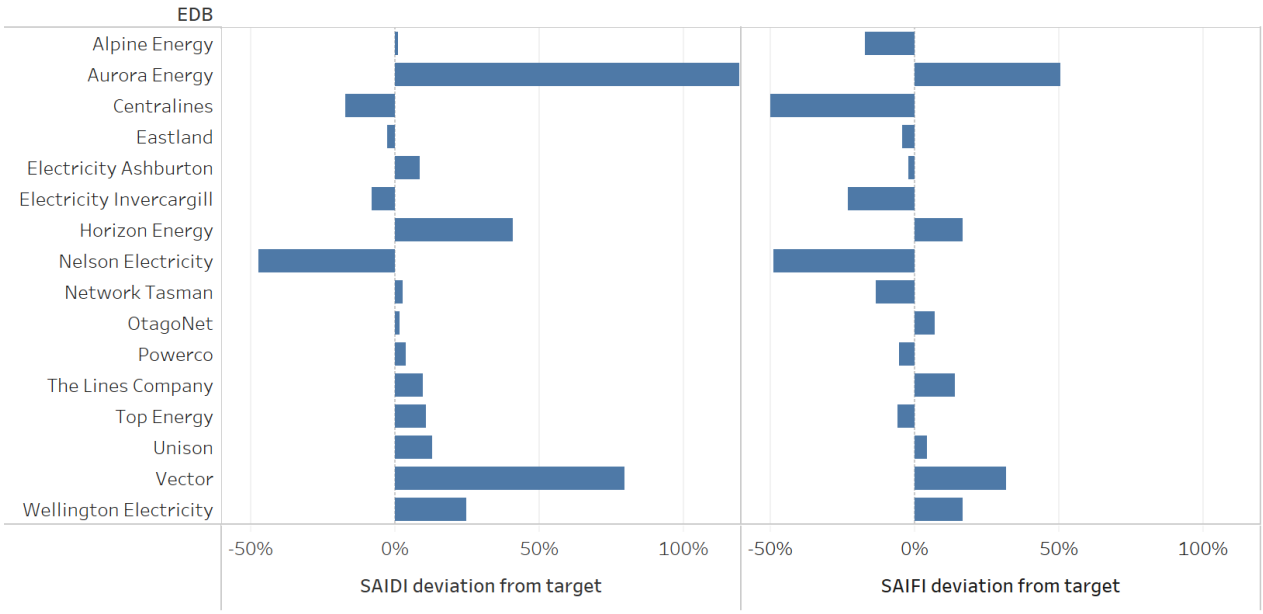
C40 If multiple quality standards are introduced, for example, the separation of unplanned and planned interruptions, it may be appropriate to implement different methods for deriving the applicable standard.

Reference period

C41 While using a 10-year reference period is appropriate given the information we had available for this period, we will need to consider the appropriateness of rolling this forward. As displayed in Figure C1, many EDBs have so far in this regulatory period significantly overshot their reliability targets.

C42 For some, this has resulted in quality standard contraventions. Like the last DPP reset, we continue to consider the appropriateness of including extreme years or compliance contraventions within the base period. Conversely, some EDBs have so far in this regulatory period performed very well relative to the historical targets. If we were to consider limiting the impact of extreme years we consider it appropriate for this to be applied symmetrically.

Figure C1 Average deviation from reliability targets, regulatory period to date



C43 We believe it is important to strike a good balance between not rewarding recent poor performance with more lenient reliability parameters, and not penalising recent good performance with strict reliability parameters.

C44 The options we are considering, but not limiting to, are:

C44.1 10 years from 2008/09 to 2018/19 (current span, rolled over);

C44.2 10 years from 2003/04 to 2013/14 (current span, not rolled over); and

C44.3 15 years from 2003/04 to 2018/19 (extending current period).

C45 The impact of each option for EDBs will vary depending on its recent performance. For example, those EDBs that have performed relatively poorly over the last five years will likely prefer updating the reference period. Conversely, those EDBs that have performed well will have stricter standards with an updated reference period.

Removal of highest and lowest years from reference period

C46 For the 2015 draft DPP reset we proposed a downward adjustment for those years where an EDB contravened the reliability standards for the last reset which was strongly opposed by EDBs.[117] We would anticipate a similar reaction this time to an asymmetric adjustment. However, we are interested in views on removing or limiting the most extreme years, both high and low, from the reference period, and if so, how many years?

Step change adjustments to reference period

C47 The ENA Working Group on Quality of Service Regulation (ENA QoS Working Group) suggest that EDBs should have the ability:[118]

> to apply to the Commission to adjust their outage reference datasets to be used for the 2020 DPP, to reflect the impact of changes in their operating environments which have occurred during the current regulatory period

C48 We welcome views on how this might be implemented within the low-cost framework of a DPP and without risk of asymmetric information bias. Unless there is evidence of a change applicable to all or most EDBs, our initial view is that the scrutiny required in accepting such a step change might be best suited to a quality only CPP application.

Automatic compliance contravention reporting

C49 Currently, EDBs who have not complied with their quality standard are required to provide details to the Commission regarding the reasons for the non-compliance, and any actions taken by the EDB to mitigate the non-compliance or to prevent similar non-compliance in future Assessment Periods.[119]

C50 We have historically requested further information from EDBs who contravene the quality standard upon receiving their annual compliance statements. This can cause potential delays in commencing an investigation.

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[117] Commerce Commission "Proposed Quality Targets and Incentives for Default Price-Quality Paths from 1 April 2015" (18 July 2014), page 27.

[118] ENA "ENA Working Group on Quality of Supply Regulation: Interim Report to the Commerce Commission" (1 October 2018), recommendation 6, page14.

[119] *Electricity Distribution Services Default Price-Quality Path Determination 2015* [2014] NZCC 33 (28 November 2014), clauses 11.5a and b.

C51 We are considering including requirements in the DPP for additional reporting when an EDB has contravened its quality standard. This additional information would allow us to understand the causes of the non-compliance, the state of its network, and responses it has taken to address the worsening reliability performance. The information we are considering include:

C51.1 details of the interruptions during the applicable period;

C51.2 any existing independent reviews of the state of its network or operational practices;[120]

C51.3 investigations it has made into the major event days or other significant interruptions;

C51.4 assessment of failure and trigger events;

C51.5 analysis of and trends in asset condition;

C51.6 analysis of the sufficiency of replacement and renewal activity; and

C51.7 analysis of its approach to vegetation management.

Incentive scheme

C52 By implementing a revenue-linked quality incentive scheme, we want to promote distributors' incentives to provide services at a quality that consumers demand, as required by section 52A(1)(b) of the Act. In turn, this affects distributors' incentives to invest and maintain assets, consistent with section 52A(1)(a) of the Act.

Approach taken in the current DPP

C53 A revenue-linked incentive scheme was introduced for the current regulatory period to explicitly convey an element of the cost-quality trade-off between distributors and consumers. It was viewed that a revenue-linked quality incentive scheme was an appropriate mechanism to incentivise distributors to maintain or improve reliability beyond that required by the quality standards, where cost-effective. Likewise, the scheme was intended to provide an incentive for distributors to avoid over-investing in reliability where it is not efficient to do so.[121]

[120] Where no state of the network review has been undertaken, we may consider a requirement that this is undertaken.

[121] Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020 – Quality standards, targets, and incentives" (28 November 2014) para 3.4.

C54 The incentive scheme strengthens the incentives for distributors to improve their understanding of and reaction to the cost of providing a given level of reliability. For example, the cost of tree cutting can be compared to the revenue gain provided (or loss avoided) for the expected outcome in reliability.

Assessed reliability same as for the quality standard

C55 The approach for assessing reliability for the incentive scheme is the same as that used for setting the quality standard. Namely:

C55.1 SAIDI and SAIFI are used as the reliability metrics;

C55.2 major unplanned interruptions are limited to a boundary value;

C55.3 planned interruptions are weighted by 50% relative to unplanned interruptions; and

C55.4 the same historical dataset is used to measure assessed performance against.

Revenue at risk, caps and collars, and the incentive rate

C56 Parameters for the incentive scheme were conservatively set for the current regulatory period, and it was noted that we may strengthen the scheme once we, EDBs, and consumers have gained more experience with it. The parameters exclusive to the incentive scheme were:

C56.1 a total revenue at risk of 1% – 0.5% each for SAIDI and SAIFI;

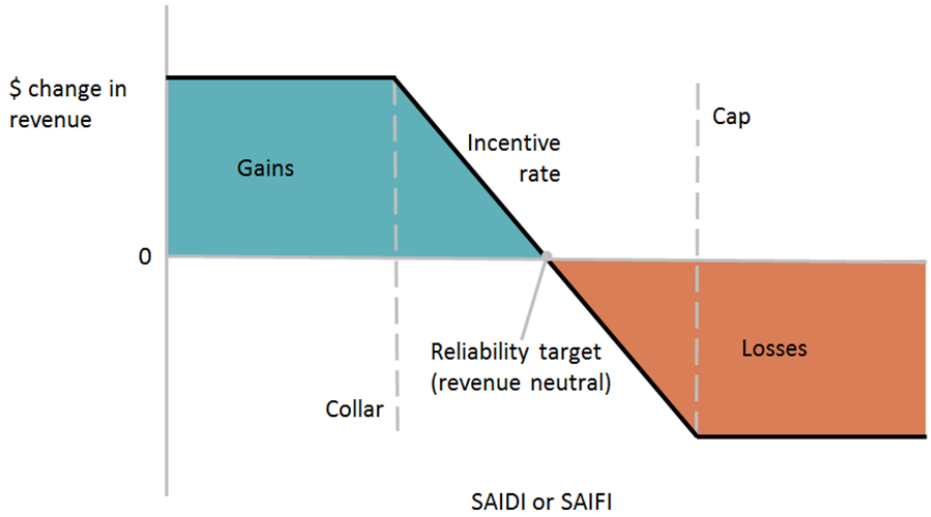
C56.2 a target equal to the historical average of SAIDI and SAIFI – the point at which no rewards or penalties are accrued;

C56.3 a cap and collar one standard deviation from the historical average of SAIDI and SAIFI; and

C56.4 an incentive rate for SAIDI and SAIFI which were derived from the above parameters.

C57 If reliability is better than the target, then future allowed revenue will be increased. Likewise, if reliability is worse than the target, then future allowed revenue will be reduced. Figure C2 illustrates how the revenue-linked incentive scheme operates in practice and demonstrates the relationship between change in revenue, the SAIDI or SAIFI cap and collar, and the SAIDI or SAIFI incentive rate.

Figure C2 Stylised chart of the revenue-linked quality incentive scheme



Distribution of rewards and penalties

C58 Revenue is adjusted by the applicable reward or penalty in the financial year following the derivation of the gain or loss amount. Consequently, this results in a two year lag to allow for performance to be assessed and calculated before it can be applied to revenue.

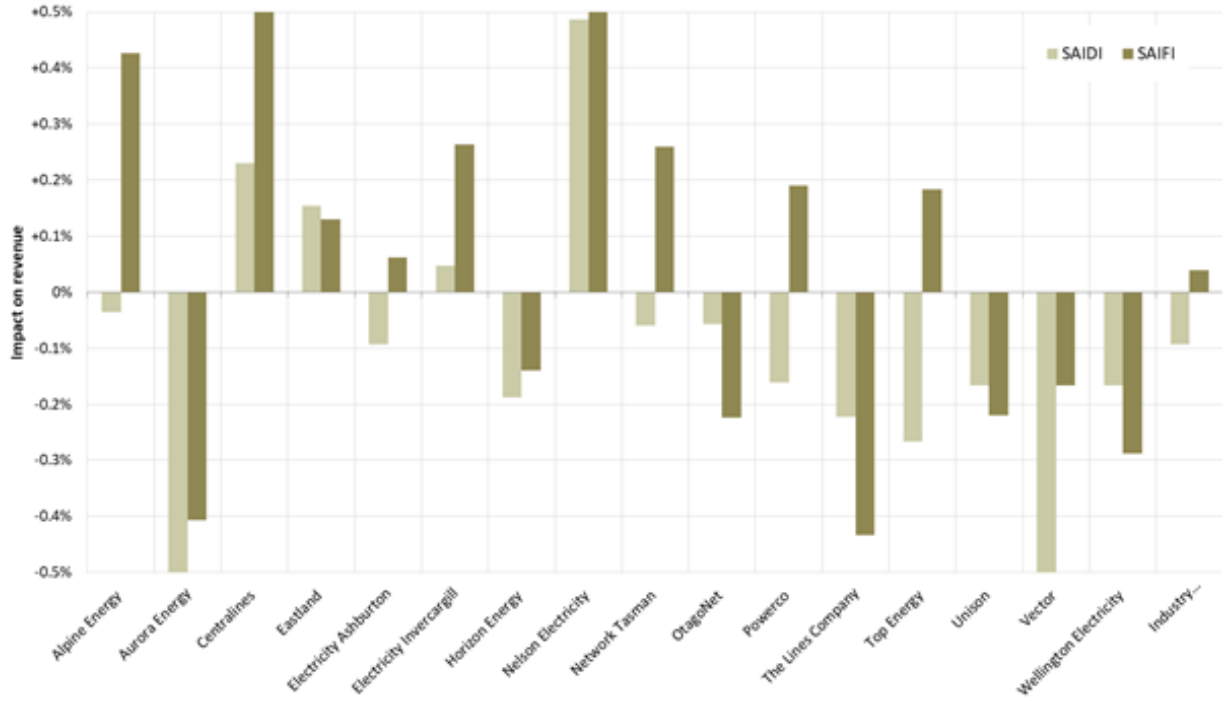
C59 We considered that rewards and penalties should be passed on to the distributor or consumers as soon as practically possible after the performance has been assessed. With a limit on the revenue at risk it was considered that there would not be significant price volatility and therefore banking rewards and penalties was not necessary.

Assessment of the current incentive scheme

C60 Rewards and penalties resulting from the incentive scheme for the regulatory period to date vary widely between EDBs, from near maximum reward to near maximum penalty. The average distributor will be penalised 0.05% of revenue, however, due to Vector Lines, Wellington Electricity, and Aurora Energy (three of the largest distributors), the weighted average comes to a penalty of 0.34% of revenue.

C61 Figure C3 shows the breakdown of the recoverable costs due to the incentive scheme as a proportion of revenue for the current regulatory period to date. This shows that for most distributors, and the industry in aggregate, that SAIDI is the bigger cause of penalties and SAIFI the bigger cause of rewards.

Figure C3 Accrued SAIDI and SAIFI incentive impacts (2016–2018)



C62 Within the industry the reliability caps were exceeded on 26 occasions (27%), the reliability collars were outperformed on 22 occasions (23%), with the remaining half falling within the cap and collar range.

Considerations for DPP3 – Incentive scheme

C63 Any potential amendments to the incentive scheme should be considered in conjunction with potential amendments relating to the quality standard(s).

Keeping an incentive scheme?

C64 In principle, we consider that a cost-quality trade-off between distributors and consumers is still relevant. However, we are assessing the value of the revenue-linked incentive scheme for reliability. We are interested in views of the effectiveness of responding to this cost-quality trade-off and whether it reflects consumer preferences. Also, as discussed in Attachment D, we are considering widening the scope of quality metrics subject to the incentive scheme.

C65 We are mindful that without an incentive scheme, and with reliability limits set above the historical average (currently one standard deviation), that reliability may deteriorate within the limits without compensation to the customers. With using a rolling historical dataset to calculate reliability limits, there may be a risk of a allowing gradual deterioration without triggering a quality contravention.

Reflecting consumer preferences

C66 We are considering how best to incorporate consumer demands or preferences within the incentive scheme, and welcome views on how to achieve this. Currently, the scheme places a cost-quality trade-off between EDBs and consumers. We noted in 2014 that this is expected to provide EDBs with appropriate incentives around their level of investment in reliability.

C67 We are interested in views on whether the current quality incentive scheme has been (or can be) effective in reflecting consumer preferences around prices and quality. For example, if consumers prefer lower prices and lower quality, how can we best give effect to this preference? In this regard, the ENA QoS Working Group note that:[122]

> … the information available at this time suggests customers generally are not willing to pay more for improved service levels, as would be required in some instances if comparable reliability standards had to be achieved.
>
> In addition, while some customers may be willing to accept lower levels of reliability for reduced prices, this would require support from a large proportion of an EDB's customer base before it could be reflected in network wide quality standards. Customer feedback to date strongly suggests that declining reliability standards are not generally acceptable.

Revenue at risk

C68 We are uncertain as to whether 1% revenue at risk has been the appropriate level to promote the desired incentives. With the incentive scheme in place for one regulatory period it may be appropriate to increase the cost-quality trade-off where this is in the long-term interests of consumers. The options we are considering are:

C68.1 keep the total revenue at risk at 1%;

C68.2 raise the total revenue at risk to up to 5%; and

C68.3 lowering the revenue at risk for SAIFI and/or SAIDI to 0% or removing the scheme.

SAIDI and SAIFI incentives

C69 Currently, the revenue exposure attributable to SAIDI and SAIFI are divided equally. We are seeking views on the merit of having a higher weighting for SAIDI given that the number of interruptions, the sole driver of SAIFI, is partially captured through SAIDI.

[122] ENA "ENA Working Group on Quality of Supply Regulation: Interim Report to the Commerce Commission" (1 October 2018), page 17.

Caps and collars

C70 As noted in paragraph C63, assessed SAIDI and SAIFI have fallen outside the caps and collar range half of the time. This suggests that the cap and collar bands may not be wide enough. Widening the caps and collar bands would ensure that EDBs are exposed to these incentives more often. The options we are considering include:

C70.1 keeping caps and collars one standard deviation from the historical average;

C70.2 widening the cap and/or collar bands to two standard deviations (or less) from the historical average; and

C70.3 removing the caps and/or collars.

C71 It is our preference that the SAIDI and SAIFI caps applicable to the incentive scheme and the respective SAIDI and SAIFI limits applicable to the quality standard are equal.

C72 We have considered certain scenarios where it may be appropriate to incorporate asymmetric caps and collars. For example:

C72.1 where the SAIDI or SAIFI collar would otherwise fall below 0;

C72.2 if it is considered that worsening reliability should have a higher weighting than improving reliability (or vice versa); or

C72.3 if it is desirable to expose EDBs to incentives for a wider range above the target than below the target (or vice versa).

C73 If asymmetric caps and collars were introduced, we consider that the revenue at risk may still be symmetric. By implication this would result in asymmetric incentive rates above and below the target.

Incentive rate

C74 Currently, the SAIDI and SAIFI incentive rates are implied by the settings of the revenue at risk and the cap and collar bands. We also have the option of explicitly setting the incentive rate meaning the caps and collars or the revenue at risk would be set endogenously (for example fixing or maintaining the current incentive rates).

C75 In principle, we consider that the incentive rates should not be greater than the value of lost load (VoLL). We are considering limiting any implied incentive rate to the VoLL if necessary.[123]

[123] The value of lost load, or VoLL, is a measure of the economic value given to an amount of electricity that is prevented from being delivered to consumers due to an outage. In the Electricity Industry Participation Code, the value of expected unserved energy is defaulted to $20,000 per megawatt-hour; see Electricity

Planned interruptions

C76 The ENA QoS Working Group has suggested that planned interruptions should be removed from the incentive scheme.[124] They reason that removing planned interruptions will "improve incentives to plan and execute work programmes across the regulatory period without undue focus on single year outcomes".

C77 The Working Group also suggested including a planned outage notification measure to replace planned SAIDI and SAIFI, reasoning that "this appropriately moves the financial incentive to the planned outage service metric that matters most to customers".

C78 Our preliminary view is we consider it inappropriate to remove planned interruptions from the incentive scheme at this stage. While a planned interruption may be less inconvenient to a customer, and is given a lower weighting, it is not without inconvenience. Like with the quality standard, we are open to changing the weighting of planned interruptions.

Normalisation and assessment

C79 SAIDI and SAIFI reliability standards are inherently quite volatile measures that are susceptible to major events, such as extreme storms. The purpose of identifying and normalising major events is to limit the impact of such events and reduce the volatility of these measures, in order to focus on material deterioration (limiting false positives for extreme years).

Approach taken in the current DPP

C80 For the 2015 DPP reset we made some significant changes to the way major events are identified. This section summarises our current approach to normalising SAIDI and SAIFI to factor in major events.

Expectation of a major event day

C81 We have assumed that a distributor can expect to have 2.3 SAIDI major event days and 2.3 SAIFI major event days per year. The boundary value for SAIDI and SAIFI is derived to be consistent with this expectation.

Authority "Investigation into the Value of Lost Load in New Zealand: Report on methodology and key findings" 23 July 2013. However, it is generally recognised that VoLL varies by customer type and the length of an interruption.

[124] ENA "ENA Working Group on Quality of Supply Regulation: Interim Report to the Commerce Commission" (1 October 2018), recommendation 9, page 16.

C82 The SAIDI boundary value was determined to be the 23rd highest unplanned SAIDI calendar day over the historical 10-year reference period. Likewise, the SAIFI boundary value was determined to be the 23rd highest unplanned SAIFI calendar day over the historical 10-year reference period. This is consistent with an expectation of 2.3 major event days per year as suggested by the internationally recognised IEEE-1366 standard.

C83 This approach was different to that used for EDB DPP1 which used a statistical approach as set out by the IEEE-1366, a standard published by the Institute of Electrical and Electronics Engineers (IEEE).[125] However, given their assumption of no zero event days does not hold true for many New Zealand distributors, we modified the IEEE methodology to account for zero event days for the 2015 draft DPP reset.

C84 Following consultation, submitters noted that while the adjustment methodology was an improvement, the number of times the boundary value was exceeded for many distributors still did not achieve the expected 2.3 major event days per year. We agreed with submitters and consequently adopted the 23rd highest SAIDI and SAIFI calendar day (top 0.62 percentile day) over the historical dataset to determine the boundary value. This was considered appropriate as it provided a consistent expectation of 2.3 major event days per year.

Major event span

C85 Currently, a major event is applicable only to a single calendar day. We had considered major events that spanned more than one day, however, we had reservations regarding problematic data and definitional problems with interpreting multi-day major events. These issues included:

C85.1 setting targets based on the available historical data that we have;

C85.2 interpreting the start and end dates of a major event and which interruptions apply to that event; and

C85.3 verifying that the same major event is applicable to multiple days.

Treatment of major event days

C86 In the event of triggering a major event day, the unplanned SAIDI and SAIFI value is replaced with the applicable boundary value. This normalisation is used to reduce the excessive impact that an extreme event may have on underlying data. We did not consider that normalisation should completely exclude major event days.

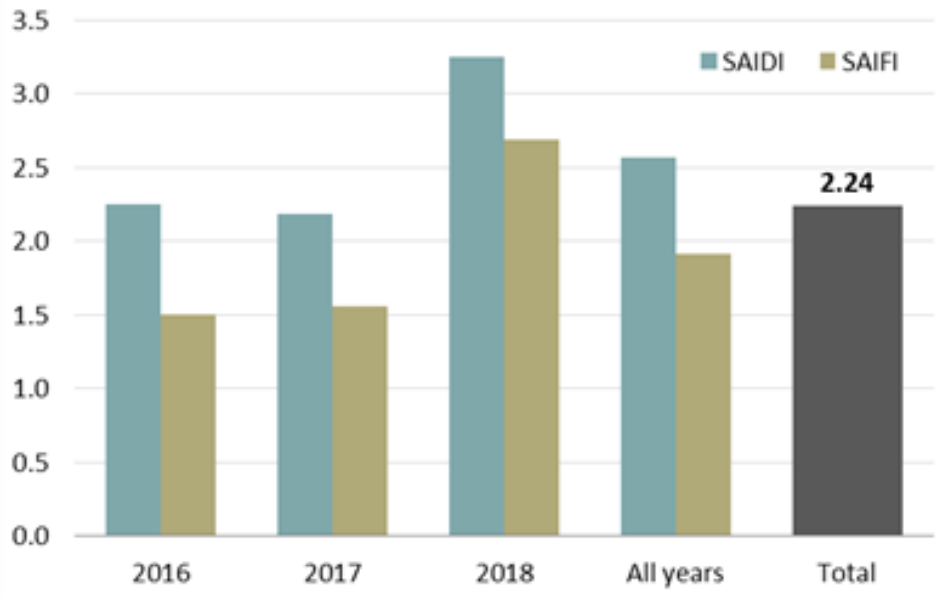
[125] Institute of Electrical and Electronics Engineers "IEEE 1366 Guide for Electric Power Distribution Reliability Indices" (31 May 2012).

C87 While we acknowledged that the number of extreme events would create some volatility, some of which would be influenced by factors external to the distributor, there is no evidence of systematic bias. Targets are based on a 10-year historical average and are applied consistently with assessed values going forward. Removing major event days would shift the source of volatility to the number of events that are close to but do not trigger a major event.

Assessment of current approach

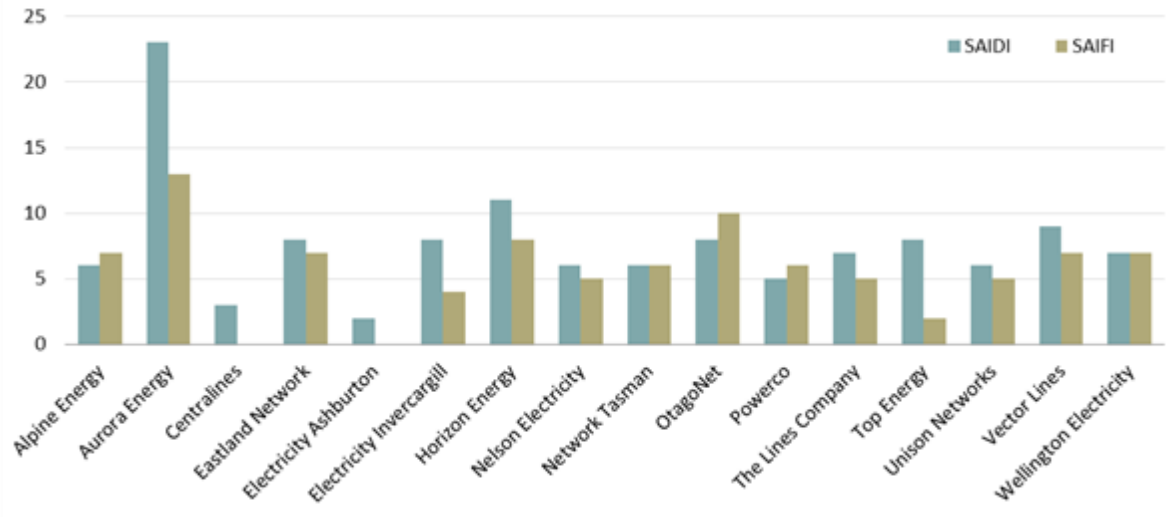
C88 Figure C4 shows the average number of major event days for SAIDI and SAIFI across EDBs for this regulatory period to date. Compared to our expectation of an average 2.3 major event days per year, SAIDI has averaged 2.56 and SAIFI has averaged 1.92 (SAIDI and SAIFI combined has averaged 2.24). Our analysis suggests that the frequency of major events has not materially changed over this regulatory period to date.

Figure C4 Average number of major event days by year



C89 While in aggregate this methodology has performed well, there is a lot of variation between EDBs, as shown in Figure C5. At one extreme Aurora Energy has triggered 36 major event days and at the other extreme Electricity Ashburton has triggered just two major event days over the three-year period.

Figure C5 Total number of major event days by EDB



Considerations for DPP3 – Normalisation

C90 We consider that there may be some scope to fine-tune some aspects of the normalisation approach. This section outlines the aspects of normalisation, and the options, we are considering.

Expectation of a major event day

C91 Given the nature of major events we can accept some volatility in the frequency of major event days (MEDs) between EDBs and years. Given on average our methodology has performed well, we propose to define a MED as being the 23rd highest daily unplanned SAIDI and SAIFI over a 10-year reference period.

C92 For normalisation purposes, the boundary value may be determined by:

C92.1 using the 23rd highest daily unplanned SAIDI and SAIFI, assuming a 10-year reference period (status quo);

C92.2 using an alternative to the assumption of 2.3 MEDs per year; or

C92.3 reverting to the modified IEEE statistical methodology as used for the EDB DPP2 draft decision.[126]

[126] Commerce Commission "Proposed Quality Targets and Incentives for Default Price-Quality Paths from 1 April 2015" (18 July 2014), pages 17 to 20.

Identification of a major event day

C93 Currently, a major event day only accounts for interruptions beginning on a calendar day. We consider that if the data is available, at a minimum, a major event day should span any 24-hour period. For example, if an extreme storm hits an EDB at 11:00pm and results in several interruptions stretching into the following day, it would be reasonable to treat the same as a storm hitting at 12:00am.

C94 For normalisation purposes, an unplanned major event day may span for:

C94.1 one calendar day only (status quo); or

C94.2 a rolling 24-hour period.

C95 We have asked for additional information, via an information request, which includes start and end times for each interruption to test the feasibility of using a rolling 24-hour period option.

Major events lasting more than one day

C96 Extreme weather events or natural disasters can also last multiple days and, in principle, we are considering whether it is appropriate for such events to be normalised as one event.

C97 Another scenario is where an EDB acts to restore an unplanned interruption quickly but is then followed by another interruption (planned or unplanned) to complete the fix. This could potentially create perverse incentives not to restore major interruptions as quickly as possible if the EDB is subject to further penalties for follow-up interruptions.

C98 For normalisation purposes, we are considering:

C98.1 confining major events to one day only; or

C98.2 allowing for aggregation of multi-day events and/or follow-up interruptions for extreme weather events and disasters (with adequate disclosure requirements).

C99 We have asked for additional information, via an information request, which includes more specific causes for each interruption to test the feasibility of aggregating of major events.

Treatment of major event days

C100 The 2014 ENA Working Group proposed that SAIDI and SAIFI major event days be normalised to the daily average or zero with the support of many submitters.[127] They reasoned that:

C100.1 the number of extreme events would create unnecessary volatility in assessed reliability and therefore should be excluded from the dataset; and

C100.2 this is similar to what is done in some other regulatory jurisdictions including the UK and parts of Australia.

C101 Any decision made regarding the treatment of major event days should be reconciled with the historical dataset the distributors provided to the Commission. While we consider that it may be appropriate to exclude major events resulting from severe weather events, we are not able to consistently apply this to the historical information provided by distributors. For example, the causes for many major events were unlisted, unknown, or too high-level.

C102 We do not consider it appropriate to exclude major events that are to a large degree within the control of the distributor—for example, tree contacts or defective equipment. Our analysis of the available data suggests that there are a number of major events that are not attributable to an unusual external event.

C103 We also note that excluding the impact of major event days would result in a significant step change where similar significant events could have materially different impacts on assessed reliability depending on whether a major event day is triggered or not.

C104 There are a number of options that can be considered. Depending on the respective incentives relating to the compliance standards and the incentive scheme, there may be scope for differential treatment of major events between these two instruments. These options include:

C104.1 Retaining the replacement of any major event SAIDI or SAIFI value with the boundary value. This ensures there is a limit on how much risk an EDB is exposed to a major event without removing it completely.

[127] The 2018 Working Group have again suggested that major events should be replaced with the average daily SAIDI or SAIDI value. ENA "ENA Working Group on Quality of Supply Regulation: Interim Report to the Commerce Commission" (1 October 2018), recommendation 4, page 12.

C104.2 Weighting the portion of a SAIDI value (not as relevant for SAIFI) in excess of the boundary value by a fixed or decreasing percentage, for example 50%. This would ensure that there an incentive remains, albeit smaller, to restore supply to customers as quickly as possible once the major event is triggered.

C104.3 Removing any major event from the assessment, noting that such treatment would also need to be applied to the historical reference dataset. This option, if adopted, ideally would be complemented with more scrutiny of the quantity and causes of major events during the period.

C104.4 Replacing any major event with the average daily SAIDI or SAIFI during the assessment period, noting that such treatment would also need to be applied to the historical reference dataset. This option, if adopted, ideally would be complemented with more scrutiny of the quantity and causes of major events during the period.

C104.5 Excluding any adjustment to SAIDI or SAIFI for major events.

Other issues

C105 This section discusses further considerations which fall outside of the general quality standards and incentive scheme topics. We are proposing some information disclosure and compliance reporting amendments as to improve transparency of reliability performance.

Disclosure and scrutiny of major event days

C106 When a major event is normalised, there should be full transparency as to when and why the major event happened, and the impact of normalisation. This becomes more important if we wish to place more scrutiny on major events.

C107 Currently, the only disclosure that an EDB must provide is the cause of each major event day within its annual compliance statement. Without transparency, we are unable to assess when the major events occur and the magnitude and causes of these major events.

C108 However, despite the lack of requirements, many EDBs do voluntarily provide additional information within its compliance statement. Therefore, we do not consider that there would be significant regulatory burden to increase the requirements for those EDBs that do not.

C109 The options we are considering are:

C109.1 additional reporting requirements for major events including dates, times, raw SAIDI and SAIFI values, and more descriptive causes; potentially complemented with

C109.2 increasing scope for scrutinising major events that meet a certain (as yet undecided) threshold, especially if we were to relax the quality standard(s) or major event day treatment; or

C109.3 no additional requirements.

Consistency between DPP and ID normalisation methodologies

C110 There is currently an inconsistency between the normalisation methodologies of reliability metrics between the DPP and information disclosure. At a minimum we are proposing to align these.

C111 However, recognising that normalisation methodology, especially the boundary values, may change from reset to reset we consider a more flexible approach may be more desirable. An issue with changing the normalisation methodology is that it would create an inconsistent time series which cannot be examined over the long-term.

C112 To address the potential for changing normalisation methodologies we are considering a requirement for EDBs to disclose a number of its most major events during the disclosure year, for example 10. This option would better enable interested parties, including the Commission, to retrospectively normalise reliability measures to the prevailing DPP methodology.

Interruption data on LV lines

C113 Interruptions on the LV network are not captured as part of the reliability measures. It is estimated the interruptions on the LV networks could account for around 10 to 15% of total interruptions, and up to 40% for some EDBs.

C114 Ignoring interruptions attributable to LV lines means that a material proportion of interruptions that an end consumer experiences are not captured. Consequently, there are no incentives or standards to prevent or restore interruptions within our current framework. We consider that this may distort the incentives in favour of other interruptions that are subject to regulatory scrutiny, at the expense of LV lines.

C115 We understand that not all EDBs have interruption data on LV lines readily available. However, we consider that this information should be accessible and disclosed in the future. Advice received indicates that consumers will have to contact the EDB (either directly or via their retailer) to notify of the fault, and that systems should be in place to record these.

Momentary average interruption frequency index – MAIFI

C116 SAIDI and SAIFI measures only include interruptions that last longer than one minute. MAIFI is a measure of the frequency of interruptions lasting less than one minute and is not currently accounted for in our regulatory regime. We consider that 'momentary' interruptions can be also be disruptive.

C117 The potential addition of MAIFI to information disclosure would provide more transparency of the actual level of service that consumers experience. We recognise that some EDB systems may not currently have MAIFI data readily accessible. However, going forward, we do not consider that should be a barrier for implementing systems to record these for disclosure purposes.

Interruption reporting by location, network types, and customer types

C118 As SAIDI and SAIFI are network-wide metrics, there are potential differences in performance between regions, network types (urban, rural, remote), and customer types (residential, commercial, industrial) that are hidden.

C119 Providing information regarding the impacts of interruptions by region, network types, and customer types would provide more relevant information of the level of service experienced by particular user groups.

Disclosure of electricity losses

C120 SAIDI and SAIFI measures are limited to average customer experience and by implication treat all interruptions equally. SAIDI and SAIFI do not give any sense for how much supply is lost from the interruption. For example, an interruption occurring at 7:00 p.m. will be treated no different than one at 2:00 a.m. Likewise, an energy intensive industrial business will be treated the same as a small residential user.

C121 Providing information regarding how much electricity is lost from interruptions would provide more transparency of the actual level of service an end consumer sees. However, we acknowledge that accurately measuring lost electricity load or delivery is likely to be difficult. To incorporate this, electricity losses from interruptions would likely need to be estimated and we would need to work with stakeholders to determine a suitable methodology.

Internal decisions and reopeners – live lines policy

C122 Internal policy decisions, such as a decision to ban or minimise live lines works, can have a significant impact on reliability performance.

C123 We are aware that any internal policy decisions, such as banning or minimising live lines works, will have an impact on reliability performance. While we will consider options within a DPP framework, we note that such policies are not applied throughout the industry.

Approach taken in the current DPP

C124 At the 2015 DPP reset, we did not include any step change to reliability to account for live lines work. During the current DPP period, we have so far provisionally rejected Vector's request to reopen the quality standards to account for decreased live line work on the basis that we did not consider any requirement not to undertake live lines work arose from a new or changed legislative or regulatory requirement. In proposing to reject the request, we committed to considering the issue in the DPP reset.

Options considered

C125 We do not have a preferred option at this point in the process. However, options we are considering include:

C125.1 making an explicit 'step change' adjustment to SAIDI and SAIFI targets/compliance thresholds;

C125.2 using a shorter reference period for unplanned SAIDI and SAIFI to only capture the most recent years where EDBs have done less live line work; and

C125.3 not making any allowance, as where an EDB commits to practices which take a more risk-averse approach than is required by good industry practice, the EDB and not the customer should bear the impact.

Attachment D Other measures of quality of service

Purpose of this attachment

D1 In this attachment, we set out our preliminary views on the issues relating to quality of service measures (other than the existing measures of network reliability) that could be considered as part of the quality standard to apply to EDBs during DPP3.

Overview of quality standards

D2 Quality standards are an important part of determining a price-quality path. Quality standards ensure that any efficiency gains sought by the regulated suppliers do not come at the expense of meeting a minimum level of quality.

D3 Under Section 53M(1)(b) of the Commerce Act, we are required to specify the quality standards that must be complied with by regulated suppliers under a DPP. The Commerce Act does not prescribe what should be included in a quality standard. The approach we have taken in previous DPPs is to set quality standards for EDBs based on what is most important to consumers.

D4 This is consistent with section 53M(3) of the Commerce Act:

> Quality standards may be prescribed in any way the Commission considers appropriate (such as targets, bands, or formulae) and may include (without limitation) –
>
> (a) responsiveness to consumers; and
>
> (b) in relation to electricity line services, reliability of supply, reduction in energy losses and voltage stability or other technical requirements.

D5 The quality standards that apply to EDBs in DPP3 are based on measures of network reliability, as this was considered to be the most important aspect of quality for consumers.[128]

D6 However, the quality of electricity distribution services has a number of dimensions in addition to reliability. We are seeking views on whether the quality standards to apply to EDBs during DPP3 should include additional measures that reflect other dimensions of quality that are valued by consumers.

[128] Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020, Main policy paper" (28 November 2014), para 6.2.

D7 We are also interested in the existing measures of network reliability (which are lagged indicators in that they measure quality once an interruption has occurred), and whether these should be supplemented by measures that are more forward-looking or 'leading' in nature. A leading indicator of network reliability that more closely reflects the underlying condition of the distribution networks may enable steps to be taken in advance of asset failure and service interruptions.

D8 This may also result in the identification of additional quality measures that we might want EDBs to report their performance against, but may not necessarily result in additional quality standards for DPP3. For example, this may lead to further changes to the information disclosure regulations to require EDBs to disclose this information and that will fall outside of the DPP workstream.

Approach taken in the current EDB DPP

D9 In the 2014 EDB DPP policy paper, the Commission referred to work that had been undertaken by a working group that had been established by the ENA to review quality of service measures used in price-quality regulation. We noted that they:[129]

> … summarised customer surveys, undertaken by distributors, and found the frequency and duration of power cuts to be the most important aspect of quality for consumers. The sole consideration of reliability for the quality standards and quality incentive scheme was generally supported by submitters.

D10 The assessment of reliability that is used in the quality standards and the quality incentive scheme in the current DPP are SAIDI and SAIFI.[130] In 2014, we noted that SAIDI and SAIFI were internationally recognised measures of network reliability and that significant historical data existed for SAIDI and SAIFI.

D11 Having determined quality standards for the 2015-2020 DPP based on SAIDI and SAIFI, we also set out some areas where the approach to quality standards could be developed further in future regulatory periods.[131] These included:

D11.1 increasing the range of measures of service quality;

D11.2 refining the existing measures of reliability; and

D11.3 strengthening the incentives of the quality incentive scheme.

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[129] Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020, Main policy paper" (28 November 2014), para 6.2.

[130] The System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI) respectively measure the average duration and frequency of interruptions experienced by consumers each year. A higher SAIDI or SAIFI value represents poorer reliability.

[131] Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020, Main policy paper" (28 November 2014), para 6.56.

D12 The existing SAIDI and SAIFI standards of reliability, options for refining those standards, and strengthening the incentives in the quality incentive scheme, are addressed in Attachment C.

D13 In 2014, we said that the quality regime could be developed in future periods by capturing a greater breadth of service quality metrics that are valued by consumers. We referred to work undertaken by the ENA to identify the dimensions of quality that consumers most value. In addition to the frequency and duration of interruptions, these additional dimensions of quality were listed as follows:[132]

D13.1 providing high quality power supply;

D13.2 the time it takes to respond to a power cut;

D13.3 the time taken to answer the telephone;

D13.4 providing information on reasons for and the likely duration and extent of a power cut;

D13.5 processing applications for new connections; and

D13.6 providing sufficient notice of shutdowns.

D14 We noted that submissions were generally supportive of future consideration of customer service measures.

Our proposed approach for DPP3

D15 As noted above, the quality standards that apply during DPP2 are based on network reliability as measured by SAIDI and SAIFI. These measures are likely to broadly remain appropriate, subject to any refinements that we may make. The current measures of quality are discussed in Attachment C.

D16 We are considering whether the quality standards and/or incentives should be expanded to include additional dimensions of quality that are important to consumers. In our 2017 Open Letter on our priorities for the EDB DPP reset, we noted that it may be appropriate to consider other dimensions of quality, beyond the current standards of SAIDI and SAIFI.[133]

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[132] Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020, Main policy paper" (28 November 2014), para 6.58.

[133] Commerce Commission "Our priorities for the electricity distribution sector for 2017/18 and beyond" (9 November 2017), Attachment, para 6.1.

D17 In our process paper for EDB DPP3, we noted that the ENA had established a Quality of Service working group to examine technical matters relating to quality standards and incentives. This followed a similar process to that undertaken as part of the 2015 DPP reset.[134] We said that we intended to take into account any material received from the ENA working group in preparing this issues paper.

ENA Quality of Service Working Group

D18 The ENA QoS working group has been considering potential refinements to the current DPP quality regime. The ENA QoS working group has considered current and potential new quality standards and measures. The working group was informed through surveying EDBs on their experiences under the quality regime and on the information that EDBs collect, and reviewing international practice.

D19 The ENA QoS working group has had a number of specific workstreams, including a customer workstream which has considered whether additional measures of quality should be included, either in the formal quality standard used for compliance purposes; in the quality incentive scheme; or as part of the information disclosure regime.

D20 As part of this work, the ENA also held a workshop with a Consumer Reference Panel in July 2018 that was facilitated by market research company UMR and involved approximately 15 consumer representative groups to discuss quality measures that are important to consumers.[135]

D21 The ENA QoS working group submitted an interim report to us on 1 October 2018, outlining recommendations for the quality regime to apply during DPP3.[136] This included recommendations for two new customer service measures to be included in the quality incentive scheme, but not in the quality standard used for compliance purposes. The two new customer service measures proposed by the ENA QoS working group relate to the time for EDBs to provide a quote in response to applications for new connections, and the notification of planned interruptions.

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[134] Commerce Commission "Default price-quality paths for electricity distribution businesses from 1 April 2020: Proposed process" (14 June 2018), para 18.

[135] Participants included Age Concern, AA, Citizen's Advice, Consumer NZ, Employers and Manufacturers Association, Energy Trusts Association, GreyPower, MEUG, Salvation Army, and Wellington City Council.

[136] ENA "ENA Working Group on Quality of Service Regulation: Interim Report to the Commerce Commission" (1 October 2018).

D22 According to the ENA QoS working group, both of these measures are important to consumers:[137]

> Average time taken to quote new connections was identified as being of notable customer value. This was specifically identified by the ENA Customer working group during the review of customer values identified from existing individual EDB research, as well as through the ENA Customer Reference Panel, and through review of overseas regimes…
>
> Communication of planned outages to customers was one of the top priorities identified by customers and supporting research. Timely, accurate and reliable notification of planned outages reduces the impact of an outage and leads to a better customer experience. Currently EDBs are required to provide customers with a minimum of 10 days' notice of a planned outage. Evidence exists through customer feedback that while this occurs the majority of the time, for various reasons not all planned outages are notified.

D23 We note that these measures were considered by the ENA working group in 2014, which noted the following:[138]

D23.1 Processing of new connection applications—this would measure the responsiveness of an EDB to applications for new connections. For example, the measure could report the percentage of applications responded to within *x* days;

D23.2 Timely notification of planned outages—this could measure the percentage of planned outages notified within specific time periods i.e. all effected consumers notified for 95% of outages two or more days in advance of a planned outage.

D24 The ENA QoS working group also proposed that the use of guaranteed service level (GSL) schemes be considered, where customers who receive a service below a minimum level would be entitled to a service level payment.[139] Although the ENA QoS working group noted that a considerable amount of work would be required on designing such a scheme, a GSL scheme funded through the regulatory cost base would "allow appropriate transparent trade-offs to be made for improving service for customers experiencing service at levels below that specified by the GSL framework."[140]

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[137] ENA "ENA Working Group on Quality of Service Regulation: Interim Report to the Commerce Commission" (1 October 2018), pages 20, 21

[138] ENA Quality of Supply and Incentives Working Group "Pathway to Quality" (February 2014), page 38.

[139] ENA "ENA Working Group on Quality of Service Regulation: Interim Report to the Commerce Commission" (1 October 2018), pages 18.

[140] ENA "ENA Working Group on Quality of Service Regulation: Interim Report to the Commerce Commission" (1 October 2018), pages 19.

D25 We are interested in views on the 2018 interim report and recommendations of the ENA QoS working group. The interim report has been published on our website alongside this issues paper. In particular, we are interested in views on the specific customer service measures proposed by the ENA QoS working group, and on the recommendation that the two new measures be included in the quality incentive scheme for DPP3 but not in the quality standard that is used for compliance purposes.

Our preliminary views

D26 In our view, there is merit in considering a wider range of measures of quality of service for inclusion in the quality regime for DPP3, to the extent that such measures are important to consumers.

D27 For example, communication with consumers in relation to planned power interruptions was identified as being important in the Powerco application for a customised price-quality path. According to the consumer survey undertaken by PwC and Colmar Brunton on behalf of Powerco, more than 90% of respondents reported that communication about planned power cuts was important.[141]

D28 The ENA QoS working group has also noted that timely, accurate, and reliable notification of planned interruptions is a key priority for consumers.[142]

D29 We agree with the ENA QoS working group that the value to consumers of being notified of a planned interruption is likely to depend on the timeliness, accuracy, and reliability of the notification given of the interruption. In particular:

D29.1 a planned interruption by definition requires advance notice of the interruption to be given to consumers;

D29.2 the period of advance notice should be adequate to allow consumers (including business customers) sufficient time to prepare for the power outage;

D29.3 the notification should also be accurate and reliable, so that the specified period of the outage is reasonable; and

D29.4 that the work undertaken on the distribution network actually takes place within the specified period (unless there are factors beyond the control of the EDB which prevent the work from being done, such as inclement weather).

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[141] Powerco CPP "Consultation report" (12 June 2017), page 35 (PwC, "Full results from consumer survey").

[142] ENA "ENA Working Group on Quality of Service Regulation: Interim Report to the Commerce Commission" (1 October 2018), page 21.

D30 We note that according to the ENA QoS working group, the notification of planned interruptions should not be included in the DPP quality standard for compliance purposes, as EDBs have not reported against such measures to date.[143] However, it is not clear to us why such measures should be excluded from the quality standard but included in the quality incentive scheme.

D31 We are interested in views on whether communications with consumers in relation to planned power interruptions should be included part of the quality standard for DPP3. We are also interested in views on whether communication of planned interruptions should be included in the quality incentive scheme.

D32 The ENA QoS working group has also considered the average time to quote new connections as a potential new measure to be included in the quality incentive scheme.[144] We note that the time to quote for a new connection is different from the time to physically provision the new connection, and that the latter is likely to be particularly important to consumers.

D33 We are interested in views on whether quoting and provisioning of new connections should be included as part of the quality standard and/or the quality incentive scheme for DPP3.

D34 As noted earlier in this attachment, an additional dimension of quality that we raised in 2014 relates to power quality. A measure of power quality is voltage stability, including on the LV part of electricity distribution networks. This was an issue raised by ERANZ in its submission on our 2017 Open Letter, where ERANZ noted the following:[145]

D34.1 advanced meters enable voltage data to be collected;

D34.2 stable voltage relates to quality of supply, safety, and overall consumer experience;

D34.3 consumers would benefit from greater transparency over how EDBs are monitoring and managing voltage stability, which is particularly relevant in the context of emerging technologies.

D35 We note that monitoring and transparency of LV power quality can help EDBs identify issues, allowing them to better target their expenditure in order to solve

[143] ENA "ENA Working Group on Quality of Service Regulation: Interim Report to the Commerce Commission" (1 October 2018), page 20.

[144] ENA "ENA Working Group on Quality of Service Regulation: Interim Report to the Commerce Commission" (1 October 2018), page 20.

[145] ERANZ "Response to open letter on priorities" (22 December 2017), page 18.

them. In addition, it allows third parties visibility of these potential issues, which enables them to offer solutions which may be more economic than the EDB one.

D36 We are interested in views on whether power quality should be considered, either as part of the quality standard or as new disclosure requirements or both.

D37 One further area put forward by the ENA QoS working group relates to the potential use of a GSL scheme. We are interested in views on whether such a scheme that allowed for consumers to be automatically compensated for poor service levels should be considered, and in particular:

D37.1 how such a scheme would sit within a framework that already includes a quality incentive scheme; and

D37.2 how such a scheme and its funding as part of the regulatory cost base would affect incentives for EDBs to offer a quality of service that reflects what consumers want.

Use of System Agreements

D38 The 2014 ENA Working Group noted that when considering customer service related measures such as communications during outages, it is important to take into account that in New Zealand, retailers are interposed between the EDB and the consumer:[146]

> This means that in some instances reporting on agreed standards between EDBs and retailers is likely to be more appropriate than inclusion of a measure within a regulated quality regime. It is also important to recognise that many customer service aspects are also included within the commercial arrangements between the EDBs and the retailer. The Model Use of System Agreement (MUoSA) developed by the EA contains many of these.

D39 The 2014 ENA Working Group noted many of the MUoSA provisions have an associated guaranteed service payment which, where relevant, must be passed on to the consumer by the retailer. Nevertheless, the 2014 Working Group considered that a number of customer service measures could be considered for a quality regime for DPP3 (including processing of new connection applications, quality of information provided during an outage, and timely notification of planned outages).[147]

D40 We note that the MUoSA maintained by the Electricity Authority contains examples of provisions for communications relating to planned and unplanned service interruptions.[148] For example, in relation to planned service interruptions:

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[146] ENA Quality of Supply and Incentives Working Group "Pathway to Quality" (February 2014), page 39.

[147] ENA Quality of Supply and Incentives Working Group "Pathway to Quality" (February 2014), page 39.

[148] at https://www.ea.govt.nz/dmsdocument/13646-appendix-b-muosa-interposed-clean

D40.1 Where the retailer is to notify consumers of a planned interruption, the EDB is to provide the retailer with notice of at least ten working days prior to the scheduled date for the planned interruption. The notice is to include the ICPs that will be affected.

D40.2 Where the EDB is to notify consumers, the EDB is to provide each of the affected consumers with a notice specifying the time and date of the planned interruption (and reasons) at least four working days prior to the scheduled date for the planned interruption.[149]

D41 The EDBs have Use of System Agreements on their websites for electricity retailers. However, there is some variation in the service levels and service guarantees offered by EDBs. For example, in the cases of Powerco and Vector, no service guarantees appear in the service standards relating to communications with respect to planned or unplanned interruptions.[150]

D42 In other cases, the EDB may commit to providing a payment to consumers when the EDB does not meet a specific service standard. For example, Vector has a service guarantee to restore supply within specified timeframes in the case of unplanned interruptions, and where it fails to meet this restoration service level, residential and non-residential end users can apply for compensation.[151]

D43 We are interested in views on the effectiveness of the UoSAs in supporting key dimensions of service quality, and on whether there would be additional benefits from including such measures in a quality standard under a DPP.

Leading indicators of network reliability

D44 We are also interested in views on the use of 'leading' indicators of EDB network reliability performance. The existing measures of network reliability (SAIDI and SAIFI) are 'after-the-fact' measures in that they measure deterioration in reliability once an interruption has occurred. In its CPP application, Powerco referred to the need to consider leading indicators of the underlying condition of its network rather than focusing solely on 'short-term' reliability:[152]

[149] Ibid, Schedule 5.

[150] Vector "Use of System Agreement – Electricity" (Schedule 1: Service Standards); Powerco "Model Use of System Agreement (Interposed) – Electricity" (Schedule 1: Service Standards).

[151] Vector "Use of System Agreement – Electricity" (Schedule 1: Service Standards).

[152] Powerco "Customised price-quality path (CPP): Main proposal" (12 June 2017), page ix.

> 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.

D45 However, as we acknowledged in our 2017 Open Letter, leading indicators may be challenging to identify and implement:[153]

> … there can be a significant lag between assets deteriorating and quality reducing, and it can be difficult to set leading performance indicators that appropriately reflect the risk of poorer quality in the future.

D46 Irrespective of whether leading indicators of network reliability are included within the formal compliance standards, we have been emphasising the need for EDBs to better understand the condition and criticality of their assets. In our 2017 Open Letter, we referred to examples of improving asset management practices, specifically in the cases of Wellington Electricity and Powerco (as well as Transpower).

D47 The ID framework also has an important role in revealing the underlying condition of distribution networks and highlighting to EDBs and to us any areas which may warrant further attention. In this regard, we may identify additional quality measures that we want EDBs to report their performance against, but that may not necessarily result in additional quality standards for the EDB DPP3 reset. For example, this may lead to changes to the information disclosure regulations to require EDBs to disclose this information and that will fall outside of the DPP workstream.

[153] Commerce Commission "Our priorities for the electricity distribution sector for 2017/18 and beyond" (9 November 2017), para 12.

Attachment E Incentives to improve efficiency

Purpose of this attachment

E1 The purpose of this attachment is to set out the issues in relation to the proposed expenditure incentives which will apply to EDBs for DPP3, and specifically to discuss proposed changes to the IRIS.

Expenditure incentives overview

E2 Our regime provides incentives for EDBs to improve operating expenditure and capital expenditure efficiency, and provides for these savings to be shared between EDBs and consumers.

E3 To achieve this, we determine 'retention factors' for operating expenditure and capital expenditure that set the proportion of any efficiency savings (or efficiency losses) that the EDBs are able to retain (or bear in the case of a reduction in efficiency). Consumers benefit from improved efficiencies through lower network prices in future regulatory control periods.

E4 We are proposing to continue using retention factors for operating expenditure and capital expenditure in order to provide EDBs with incentives to seek efficiency gains over the regulatory period, with the strength of incentives remaining constant over the regulatory period.[154] During DPP2 we applied differing retention factors to operating expenditure and capital expenditure for the reasons set out below.

E5 A higher retention factor will strengthen the incentive for EDBs to economise on expenditure relative to the EDB revenue allowances for a DPP. Where this is the result of a genuine efficiency gain, this is likely to be in the long-term interest of consumers, as the regulated electricity distribution services will be supplied at a lower cost, and a proportion of these savings will be shared with consumers.

[154] A time consistent incentive means that distributors are not exposed to the full cost of responding to external events that have a temporary impact on expenditure, and distributors are also unable to boost profits by inflating costs in a particular year. Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020, Main policy paper" (28 November 2014), para 7.3.

E6 However, we need to balance the benefits of a higher incentive rate with the risk that EDBs will inflate their expenditure forecasts. Any resulting difference between the inflated forecasts and actual expenditure incurred by the EDBs will not be due to efficiency gains. There is also a risk that EDBs may not incur expenditure and will instead accept a deterioration in service quality, although this would increase the probability that the EDB would contravene their quality path.[155]

E7 The level of scrutiny that we apply to EDB forecasts will mitigate the risk of inflated forecasts to some extent, although due to information asymmetries and the need for the DPP to be relatively low-cost, there remains a risk that the expenditure forecasts that we approve will include some upward bias.

E8 In the 2014 EDB DPP reset decision, we set different retention factors for operating expenditure and capital expenditure. For operating expenditure, the retention factor is determined in the IMs,[156] and for DPP2 is approximately 34%. This rate is determined through the IRIS mechanism, and is dependent on the WACC rate[157] and the length of time that the saving is retained by the EDB.[158] For capital expenditure, the retention factor for DPP2 was set at 15%.[159]

Operating expenditure IRIS incentive rate

E9 The operating expenditure retention factor is determined through the IRIS mechanism, which is dependent on the WACC rate as an input. We consider that retaining the IRIS mechanism from DPP2 to determine the operating expenditure incentive rate for DPP3 is appropriate because we consider that there is no substantial reason to deviate from the methodology that applied to DPP2.[160]

E10 Our intended approach for DPP3 is to use the IRIS mechanism using the DPP3 WACC value, so that the EDBs have certainty around the retention factor applied to operating expenditure efficiencies achieved throughout the regulatory period.

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[155] There would generally be a time-lag between an EDB inefficiently underinvesting and subsequent contraventions to the quality path, as distribution networks comprise of long-lived assets that can take a significant period of time to degrade. Quality standards and incentives are discussed in Attachment D.

[156] *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26 (consolidated 3 April 2018), Part 3, Subpart 3.

[157] A lower WACC rate will result in a lower retention factor as future savings to consumers are discounted less heavily, so the proportion retained by the EDB is lower.

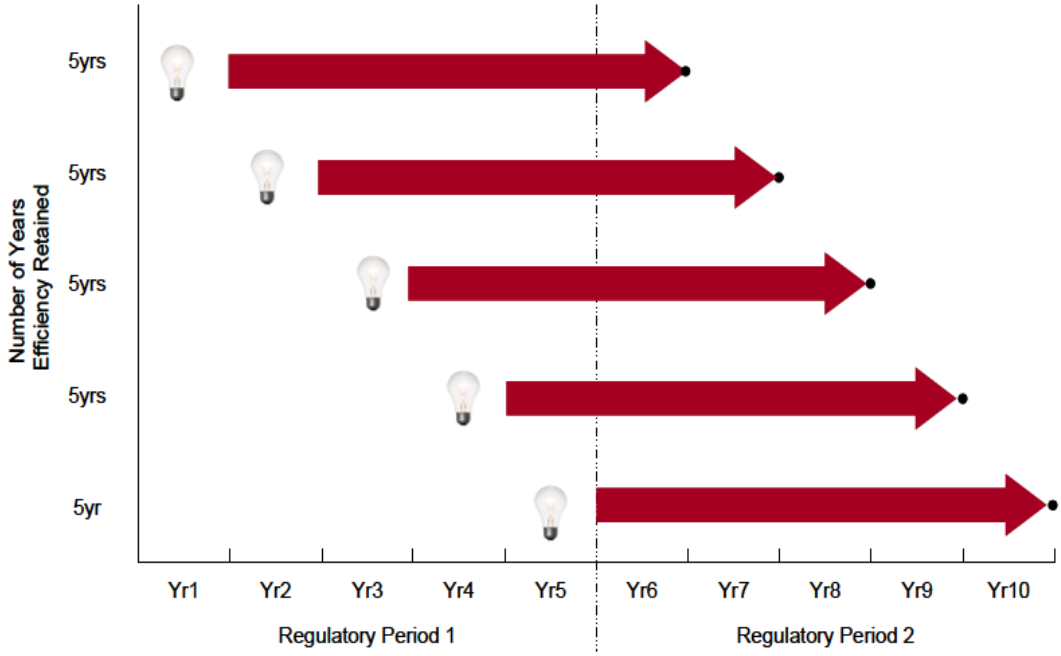
[158] Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020, Main policy paper", para 7.4.

[159] Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020, Main policy paper" para 7.6.

[160] As part of the input methodologies review, we decided not to amend the DPP IRIS. Commerce Commission "Input methodologies review decisions" (20 December 2016), Chapter 9 and Chapter 17.

E11 Figure E1 demonstrates how the IRIS mechanism works to retain (bear) savings (overspends) for five years following an efficiency being realised.

Figure E1 How the operating expenditure IRIS mechanism works



Capital expenditure IRIS incentive rate

E12 The incentive mechanism for capital expenditure requires the Commission to determine a retention factor for the EDBs at the time of each reset, unlike the operating expenditure retention factor, which is already determined by the IMs. EDBs therefore have certainty that the retention factor will be specified in advance of any efficiency improvements being achieved throughout the regulatory period.

Approach taken in DPP2

E13 In the 2014 DPP reset decision, we stated that:[161]

> …our general view is that retention factors for capital expenditure should be broadly reflective of the retention factor for operating expenditure, except where there are good reasons to prefer a different value. For example, concerns about forecasting uncertainty, or the scope to manipulate forecasts, could be mitigated by varying the strength of the retention factor.

[161] Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020, Main policy paper" (28 November 2014), para 7.33.

E14 In discussing the relative strength of incentives for operating expenditure and capital expenditure efficiencies, we concluded that a lower retention factor for capital expenditure was appropriate for DPP2 for the following reasons:

E14.1 the low-cost approach for the 2014 reset was reliant on using the capital expenditure forecasts provided by the EDBs and, by relying on each EDB's forecast in the past, the EDBs would have an incentive to systematically bias their forecast to increase their capital expenditure allowance; and

E14.2 for a large number of EDBs, expenditure in DPP1 (up to 2015) was below their own forecasts, which may be the result of inaccurate forecasting, or systematically biased forecasts.

E15 We noted that a high retention factor may result in significant gains to EDBs over and above those that arise from genuine efficiencies in capital expenditure.[162] We also noted that a higher retention rate on capital expenditure may result in the incentive to inefficiently defer or reduce capital expenditure being stronger than the incentives to maintain quality.[163]

Proposed approach for DPP3

E16 We are considering whether the reasons for setting the capital expenditure retention factor at 15% in DPP2 remain valid for DPP3. If the reasons are no longer valid, we remain of the view that the retention factors for capital expenditure and operating expenditure should be broadly similar (or there should be a smaller disparity between these incentive rates).

E17 The approaches to capital expenditure forecasting we are considering for DPP3 include applying greater scrutiny to EDB forecasts, and potentially to limit thresholds based on historical averages. We are consulting on the form that this scrutiny takes, as explained further in Attachment B. To the extent that we apply greater scrutiny to EDBs' capital expenditure forecasts for DPP3, this will mitigate the concern that led us to lower the capital expenditure retention factor in DPP2.

[162] Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020, Main policy paper" (28 November 2014), para 7.7.

[163] Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020, Main policy paper" (28 November 2014), para 7.9.

E18 In setting the retention factor for capital expenditure at 15% in 2014, we noted that during DPP1 a large number of EDBs underspent their forecasts, which may have been due to inaccurate or biased forecasts. To date during DPP2, actual levels of capital expenditure incurred by the non-exempt EDBs have in aggregate been increasing, and have exceeded the DPP capital expenditure allowances.[164] Therefore, this moderates the reason in 2014 to lower the retention factor due to the risk of EDBs' systematic bias or incorrect forecasting.

E19 As discussed in Attachment C, we are considering increasing the revenue at risk for the quality incentive scheme for DPP3. This may mitigate the risk that a higher capital expenditure retention factor can result in the incentive to inefficiently reduce or defer capital expenditure being stronger than the incentives to maintain quality.

E20 We also note that in our final decision on the review of the capital expenditure IM applying to Transpower, the base capital expenditure adjustment applies a 33% retention factor to Transpower's base capital expenditure allowance. We noted the following in relation to base capital expenditure projects:[165]

> We consider that 33% is an appropriate incentive rate for the majority of base capex because it is approximately consistent with the opex incentive rate applied through the IRIS. A consistent incentive rate between opex and capex means that Transpower has no incentive to favour capex over opex (or vice versa) in order to benefit from a higher incentive rate. Therefore Transpower will be incentivised to undertake the most efficient solution regardless of expenditure type.

E21 We note that a number of submissions on our 2017 Open Letter, in which we consulted on our priorities for the electricity distribution sector, refer to differences in incentive rates creating a bias towards capital expenditure.[166]

E22 We welcome submissions on:

E22.1 Whether a change to the 15% capital expenditure retention factor is appropriate for DPP3; and

E22.2 If a change is appropriate, what the applicable incentive rate should be.

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[164] See Figure B1 in Attachment B.

[165] Commerce Commission "Transpower capex input methodology review: Decisions and reasons" (29 March 2018), para 132.

[166] ENA "Response to open letter on priorities" (22 December 2017) pages 5 and 6; Orion "Response to open letter on priorities" (22 December 2017), para 46; ERANZ "Response to open letter on priorities" (22 December 2017), page 13.

Addressing potential concerns around a capital expenditure bias

E23 Maintaining differential incentives for operating expenditure and capital expenditure may create a preference or bias towards the type of expenditure that is subject to the lower incentive rate. In the current case, there may be a capital expenditure bias, with companies having an incentive to favour reducing operating expenditure rather than capital expenditure.

E24 A number of overseas regulators, including Ofgem and more recently the Australian Energy Markets Commission (AEMC), have moved to a 'totex' approach for setting revenue allowances for regulated utilities. This has been partly motivated by concerns around the asymmetric treatment of capital expenditure and operating expenditure.

E25 A move to a full totex approach would be a significant change in regulatory approach for EDBs. According to advice prepared by Frontier Economics for the AEMC, the transition to a totex framework would require significant development work and would likely take two to three years.[167]

E26 Rather than proposing to shift to a full totex approach for DPP3, we believe that it is appropriate to consider the retention rate to be used for DPP3.

Other expenditure incentive issues

Smoothing operating expenditure incentive amounts

E27 It is possible that 'operating expenditure incentive amounts' could be sufficiently large to cause price shocks to consumers,[168] so we are considering smoothing the annual 'operating expenditure incentive amounts' during the regulatory period to reduce the likelihood of price shocks from individual amounts. The smoothed amounts would apply for each of the last four years of the regulatory period with a nil amount for the first year. The present value of the smoothed amounts would be set equal to the present value of the 'operating expenditure incentive amounts'. The smoothing mechanism could be similar to the smoothing mechanism used for capital expenditure incentive in the EDB IM. [169]

E28 We welcome submissions on smoothing the operating expenditure incentive amounts in order to avoid price shocks to consumers and revenue shocks for EDBs.

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[167] Frontier Economics "Total expenditure frameworks: a report prepared for the Australian Energy Market Commission" (December 2017), page 80.

[168] *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26 (consolidated 3 April 2018), clause 3.3.2(2)

[169] *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26 (consolidated 3 April 2018), clause 3.3.10(2)

Changes in accounting standards

E29 Early in 2018, the International Accounting Standards Board issued a new standard, IFRS16, updating the principles relating to the treatment of leases. IFRS16 replaces IAS17 and comes into effect for annual reporting periods beginning on or after 1 January 2019.

E30 Under the new accounting standard, all lessees operating leases are referred to as 'right of use' assets and are brought onto the balance sheet (whereas under the previous standard these leases were kept off the balance sheet and treated as operating expenditure).

E31 Any changes to the accounting rules will not affect the IMs unless we amend the IMs in respect of operating leases. We will be further discussing this issue in a separate consultation process. This will consider our treatment of operating leases alongside our consideration of the EDB DPP draft decision and final decision. We intend to publish our draft reasons paper on the treatment of operating leases in May 2019.

Attachment F Energy efficiency, demand-side management, and reduction of losses

Purpose of this attachment

F1 In this attachment, we set out our preliminary views on the issues relating to incentives for energy efficiency, demand-side management, and the reduction of energy losses.

F2 The attachment is structured as follows:

F2.1 Why these incentives are important;

F2.2 The approach that we took in the EDB DPP2;

F2.3 Our proposed approach for EDB DPP3.

Why these incentives are important

F3 Section 54Q of the Act relates to incentives for energy efficiency, demand-side management, and reduction of energy losses:[170]

> The Commission must promote incentives, and must avoid imposing disincentives, for suppliers of electricity lines services to invest in energy efficiency and demand-side management, and to reduce energy losses, when applying this Part in relation to electricity lines services.

F4 We are therefore required to positively promote incentives, as well as avoid imposing disincentives, for energy efficiency, demand-side management, and energy loss reduction initiatives.

F5 Energy efficiency and demand-side management initiatives involve influencing consumer demand, for example by reducing energy consumption or by shifting demand away from peak periods (sometimes referred to as load-shifting). Such initiatives can defer or avoid investment that would otherwise be required to meet periods of peak demand.

F6 Energy losses generally refer to the extent to which electricity is lost during transmission and distribution. Distribution line losses are measured as the difference between the volume of electricity entering the distribution system for supply to consumer connection points and the total delivered to those connection points. Such losses are reported under Electricity Information Disclosures.[171]

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[170] Commerce Act 1986, section 54Q.

[171] *Electricity Distribution Information Disclosure Determination* [2012] NZCC 22 (consolidated 3 April 2018), Schedule 9e: Report on Network Demand (9e(ii): System Demand (electricity volumes carried)).

F7 We must promote incentives for investment in increased energy efficiency, demand-side management, and reduced energy losses, but only to the extent that this is not inconsistent with the overall purpose of Part 4 of the Act as set out in section 52A.

Approach taken in the current EDB DPP

Energy efficiency and demand-side management

F8 For the 2014 DPP reset, we introduced a 'revenue-decoupling' mechanism for energy efficiency initiatives. This was in response to concerns that under a price cap regime, EDB revenues are linked to volumes of energy consumption. Any energy efficiency initiative that reduces volumes would therefore adversely affect EDB revenues, undermining the incentives to pursue such initiatives in the first place.

F9 We implemented this through an energy efficiency and demand-side management scheme, which compensated EDBs for revenue forgone as a result of demand-side management initiatives.[172] Any such approved revenue forgone was allowed for as an additional recoverable cost.

F10 In addition:

F10.1 We addressed concerns that had been raised by the industry over incentives to invest in long lived assets;[173]

F10.2 We noted the importance of setting a retention factor for capital expenditure that broadly reflects the retention factor for operating expenditure, particularly "for energy efficiency and demand-side management activities which often require the supplier to incur operating expenditure in order to avoid capital expenditure."[174]

F11 So far during DPP2, we have not received any applications under the energy efficiency and demand-side management scheme.

[172] Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020, Main policy paper" (28 November 2014), paras 7.18, 7.19, and 7.23 to 7.26.

[173] Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020, Main policy paper" (28 November 2014), paras 7.28 to 7.31.

[174] Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020, Main policy paper" (28 November 2014), para 7.32.

Reduction of energy losses

F12 The ENA Energy Efficiency Incentives (EEI) Working Group provided industry input and recommendations to us during the 2014 DPP reset, including on the issue of reducing line losses. According to the ENA, the EDBs were best placed to lead in this area, and the extent of any potential gains from line loss reduction were likely to be limited, for example, due to constraints faced by the EDBs on the cable sizes used in order to meet voltage requirements.[175] The ENA EEI Working Group also claimed that losses are relatively low in New Zealand, at around 5.4% of generated energy (2011).[176]

F13 As a result, we decided not to introduce any additional incentives on EDBs to reduce line losses, beyond those already provided through reporting of losses under ID.[177]

Our proposed approach for EDB DPP3

F14 In the sections below, we identify a number of issues relating to incentives for energy efficiency, demand-side management, and reduction in energy losses. We are interested in views on these issues.

Energy efficiency and demand-side management

F15 An important difference between the current EDB DPP and EDB DPP3 is that the form of control applying to non-exempt EDBs has changed from a weighted average price cap to a revenue cap.[178]

[175] Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020, Main policy paper" (28 November 2014), para 7.53.

[176] ENA Energy Efficiency Incentives Working Group "Options and Incentives for Electricity Distribution Businesses to Improve Supply and Demand-Side Efficiency: Report to the Commerce Commission" (April 2014), page 9.

[177] Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020, Main policy paper" (28 November 2014), paragraph 7.54.

[178] See Chapter 4 and Attachment G of this paper.

F16 In our 2016 IM review, we noted that non-exempt EDBs will be regulated under a revenue cap rather than a weighted average price cap. We noted that the change to a revenue cap will "remove potential disincentives on EDBs to restructure prices to price more efficiently, and remove the potential disincentives to pursue energy efficiency and demand-side management initiatives."[179] The disincentives to invest in energy efficiency and demand-side management initiatives under a weighted average price cap was one of the reasons we changed the form of control for EDBs to a revenue cap.[180]

F17 Under a revenue cap regime such as that which will apply during EDB DPP3, the energy efficiency and demand-side management scheme that we introduced for the current EDB DPP is not required.[181] In our 2016 IM review, we gave effect to this by deleting the energy efficiency and demand-side management incentive allowance as a recoverable cost.[182] In our IM review reasons paper, we noted that submissions supported the removal of the scheme in the event that we move to a revenue cap.[183]

F18 Although the move to a revenue cap form of control will remove the disincentive for suppliers of electricity lines services to undertake energy efficiency and demand-side management initiatives, we are still required to positively promote such initiatives.

F19 One area where we are considering strengthening incentives for demand-side management is in relation to the retention factors that would apply to capital expenditure and operating expenditure in EDB DPP3. As discussed in Attachment E, we are proposing to revisit the capital expenditure retention factor and whether this should be increased towards that for operating expenditure.[184] As we noted in 2014, the retention factors for operating expenditure and capital expenditure can influence decisions by EDBs on energy efficiency and demand-side management activities.

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[179] Commerce Commission "Input methodologies review decisions – Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower" (20 December 2016), paragraph X3.

[180] Commerce Commission "Input methodologies review decisions – Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower" (20 December 2016), paras 59.3 and 88.

[181] Commerce Commission "Input methodologies review decisions – Report on the IM review" (20 December 2016), para 289.

[182] *Electricity Distribution Services Input Methodology Amendments Determination 2016* [2016] NZCC 24 (20 December 2016) clause 3.1.3(1)(m).

[183] Commerce Commission "Input methodologies review decisions – Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower" (20 December 2016), para 59.3 and 90.

[184] See Attachment E of this paper on expenditure incentives.

F20 The ENA EEI Working Group also noted in 2014 that inconsistent incentives for capital expenditure relative to operating expenditure are: [185]

> particularly relevant to efficiency options that involve greater operating expenditure relative to traditional solutions. For example, EDBs may prefer capital expenditure solutions such as expanding substation capacity, over operating expenditure solutions such as contracting for demand-side response if there is a greater incentive to undertake capital expenditure.

F21 An example of a demand-side management initiative is load-shifting, where demand is shifted away from peak periods. Such initiatives can defer or avoid network investment that would otherwise be required to meet periods of peak demand. Load-shifting may be implemented through the pricing structure set by the EDBs, using different prices for peak and off-peak periods. A revenue cap provides the non-exempt EDBs with flexibility to set prices that may incentivise load-shifting. Where this results in a saving in capital expenditure, a higher capital expenditure retention factor may strengthen the incentives for EDBs to pursue such initiatives.

F22 We note that demand-side management incentive schemes have been introduced internationally in similar regulatory regimes, although they are still at an early stage. For example, the Australian Energy Regulator (AER) introduced a demand management incentive scheme in December 2017.[186] The effectiveness of these schemes is not yet known. This may support taking an incremental approach for EDB DPP3, based on our review of the retention factors that will apply during DPP3.

F23 We are interested in views on whether the incentives for EDBs to promote energy efficiency and demand-side management initiatives should be further strengthened beyond our reconsideration of retention factors.

Reduction of energy losses

F24 According to information disclosure data, aggregate distribution line losses reported by the non-exempt EDBs for the year to 31 March 2018 were 1,576 GWh, representing 4.7% of electricity entering the EDB networks. Although this is slightly lower than the losses reported by the ENA (5.4% in 2011), this represents a significant monetary amount (annual $137 million, based on a wholesale price of $87/MWh).[187]

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[185] ENA Energy Efficiency Incentives Working Group "Options and Incentives for Electricity Distribution Businesses to Improve Supply and Demand-Side Efficiency: Report to the Commerce Commission" (April 2014), page *v*.

[186] AER "Explanatory statement: Demand management incentive scheme, Electricity distribution network service providers" (December 2017).

[187] The average wholesale price over the 12 months to 31 March 2018 reported at: https://www.emi.ea.govt.nz/Wholesale/Reports/W_P_C

F25 There is also significant variation in losses reported by individual EDBs, ranging from 3.2% to 10% in the year to 31 March 2018. This suggests that there are potentially significant performance improvements that could be achieved at an EDB level.

F26 Although it is not possible to eliminate line losses, we are interested in exploring options for incentivising the EDBs to reduce distribution line losses.

F27 Energy is principally lost in distribution networks as a result of resistance in conductors and iron losses in transformers. In broad terms, the options for reducing line losses are:

F27.1 *Reducing current*: One cost-effective way of achieving this is by installing capacitors to reduce reactive power flows. Technological advances in recent years in the areas of switchgear, control systems and power electronics have lowered the costs associated with reducing reactive power flows. Reactive power flows can be significant within rural areas, and reducing them can have other beneficial effects such as improving voltage regulation;

F27.2 *Reducing resistance*: EDBs replace ageing copper and steel conductor for hazard control reasons. Most of this will be replaced with larger equivalent cross sectional area aluminium conductor. The marginal cost of increasing the size of the conductor when renewing these assets can be relatively low and as such there is an opportunity to ensure that the impact of reduced losses are included in the business cases;

F27.3 *Transformers*: The losses associated with transformers are well-understood from a design perspective. When a unit is renewed, these factors need to be taken into account and included in the cost benefit analysis as part of the renewal.

F28 There may also be other non-technical factors that contribute to line losses, such as losses due to metering errors.

F29 One option might be to consider moving towards a ‘cap and collar’ type of mechanism to incentivise EDBs to factor energy losses onto their decisions. Under such a mechanism, an EDB is rewarded for reducing line losses below a target level, and penalised where line losses increase above the target. However, if such a mechanism were to be considered, we would have to be satisfied that this is consistent with section 52A of the Act, in particular having regard to whether consumers are willing to pay for reduced line losses.

F30 Under an incentive scheme, consumers would pay a financial ‘reward’ to EDBs who reduce line losses below the target level (in the form of a revenue uplift). Consumers would also pay for EDB investments in loss reduction activities as the assets

associated with those activities enter the RAB. These costs to consumers would have to be weighed against the consumer benefits of lower losses.

F31 We are interested in views on whether an explicit mechanism to promote investment in line loss reduction should be considered as part of EDB DPP3, or whether we should instead progress this through summary and analysis of information disclosed by the EDBs (such as through the 2018 AMP review) and targeted new disclosure requirements.

Attachment G Implementing changes from the IM review

Purpose of this attachment

G1 The purpose of this attachment is to explain how we propose to implement IM amendments made as a result of our 2016 IM review in EDB DPP3.

G2 The IM amendments will be implemented in the DPP determination and in the financial model (2020 model) for the EDB DPP3 reset. These amendments are:

G2.1 our change in the form of control for EDBs from a weighted average price cap to a revenue cap, including a wash-up for over and under-recovery of revenue;[188]

G2.2 our introduction of a mechanism for EDBs to apply for a discretionary net present value-neutral shortening of their remaining asset lives (accelerated depreciation);[189]

G2.3 our changes to the calculation methodology for the WACC;[190]

G2.4 our changes to the calculation methodology for the term credit spread differential (TCSD).[191]

Summary of how we intend to implement changes IM changes in DPP3

G3 This section provides a summary of how we to intend to implement changes from our 2016 IM review in DPP3 and where in this attachment our proposed approaches are explained in more detail.

Change in the form of control to a revenue cap with wash-up

G4 As a result of our 2016 IM review, we changed the form of control for EDBs from a weighted average price cap to a revenue cap.[192]

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[188] Commerce Commission "Input methodologies review decisions: Report on the IM review" (20 December 2016), page 78.

[189] Commerce Commission "Input methodologies review decisions: Topic paper 3: The future impact of emerging technologies in the energy sector" (20 December 2016), para 84.

[190] Commerce Commission "Input methodologies review decisions: Report on the IM review" (20 December 2016), page 59-66.

[191] Commerce Commission "Input methodologies review decisions: Report on the IM review " (20 December 2016), para 219.

[192] Commerce Commission "Input methodologies review decisions: Report on the IM review" (20 December 2016), page 78.

G5 We propose to broadly implement the revenue cap with wash-up in our DPP3 determination consistent with how our Powerco CPP price path requirements were drafted.[193] We welcome your views on whether we should be generally following the Powerco CPP approach in implementing the revenue cap.

G6 As a result of the 2016 IM review, we introduced:

G6.1 a mechanism allowing us to specify in a DPP an annual maximum percentage increase in forecast allowable revenue as a function of demand for a disclosure year[194] ; and

G6.2 a requirement for us to specify within a DPP a method for an EDB to calculate and record any 'voluntary undercharging amount foregone'.[195]

G7 In light of the potential for an EDB to restructure its prices in a way that could make implementing an 'annual maximum percentage increase in forecast allowable revenues as a function of demand' unworkable for DPP3, we propose not specifying this maximum as a control for DPP3. See paragraphs G38 to G42 of this paper for more detail on why we propose not specifying this mechanism for DPP3.

G8 However, we still consider that price shocks are a problem and are considering whether to implement a mechanism allowing a maximum percentage increase in 'forecast revenue from prices'.

G9 We have begun work on our specification of price IM to consider whether introducing an IM mechanism to allow a DPP to implement a limit on the annual percentage increase in forecast revenue from prices could be a way to mitigate the price shock risk. We have published a notice of intention to allow us to commence work on a possible IM amendment. [196] See paragraphs G22 to G24 of this paper for more detail on why we have proposed this.

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[193] Commerce Commission, "Powerco Limited Electricity Distribution Customised Price-Quality Path Determination 2018, NZCC 5", clause 8.1-8.2, 8.4, 8.6, Schedule 1.1 – Schedule 1.6.

[194] *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26 (consolidated 3 April 2018), clause 3.1.1(2).

[195] *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26 (consolidated 3 April 2018), clause 3.1.3(13)(a).

[196] Commerce Commission "Notice of Intention: Proposal to Amend Input Methodologies for Electricity Distribution Services" (15 November 2018).

G10 We intend to specify a mechanism in our DPP3 determination for limiting the accumulation of voluntary undercharging credits. We are considering specifying the voluntary undercharging threshold at 90% in our DPP3 determination. See Paragraphs G44 to G59. The mechanism is for calculating an amount of 'voluntary undercharging amount foregone'.

Accelerated depreciation

G11 As a result of our 2016 IM review, we introduced a mechanism to allow for a discretionary shortening of EDB asset lives.[197] In 2018, we further amended the IMs to better give effect to our 2016 decision.[198]

G12 EDBs may apply to us for a shortening of asset lives. We propose to include a draft response to applications as part of our DPP3 draft decision. We will include our draft value of the 'adjustment factor' for each applicant in the inputs to the 2020 model, which we will release as part of the draft decision. The adjustment factor determines the level of shortening allowed.

G13 This mechanism has been implemented in the draft 2020 model being published with this paper, and this is further discussed in Attachment H.

WACC calculation

G14 As a result of our 2016 IM review, we made amendments to our cost of capital IMs.[199] We will make our WACC determination for DPP3 by 30 September 2019 in accordance with the applicable cost of capital IMs for DPP3. This will be included in our DPP3 determination and used in the 2020 model.

Term credit spread differential

G15 As a result of our 2016 IM review, we made amendments to our TCSD calculation methodology for DPP3.[200]

G16 These amendments will be reflected in information disclosures that will be publicly disclosed by EDBs by 1 September 2019. We propose using the values disclosed by 1 September 2019 as the TCSD inputs for the 2020 model.

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[197] Commerce Commission "Input methodologies review decisions: Topic paper 3: The future impact of emerging technologies in the energy sector" (20 December 2016), para 84.

[198] Commerce Commission "Electricity distribution services input methodologies (accelerated depreciation) amendments determination 2018" (8 November 2018); Commerce Commission "Amendments-to-electricity-distribution-services-input-methodologies-determination-in-relation-to-accelerated-depreciation-Reasons-paper" (8 November 2018).

[199] Commerce Commission "Input methodologies review decisions: Report on the IM review" (20 December 2016), page 59-66.

[200] Commerce Commission "Input methodologies review decisions: Report on the IM review" (20 December 2016), para 219.

Revenue cap with wash-up

Limit on forecast allowable revenue as a function of demand

G17 As a result of the 2016 IM review, we introduced a discretionary mechanism allowing us to specify the 'annual maximum increase in forecast allowable revenue as a function of demand'.[201]

G18 We propose not specifying this for DPP3 because we consider that there is a real risk that for some types of price restructuring, the control could be unworkable for DPP3. This would lead to uncertainty for the EDB and compliance costs for both the EDB and us. We consider our view of this risk in detail below, starting at Paragraph G38.

G19 We welcome your views on whether our view of this risk of unworkability of the control is valid.

G20 While we do not propose implementing a 'limit on forecast allowable revenue as a function of demand', we still consider that price shocks arising from increases in forecast allowable revenue as a function of demand is a risk that needs to be addressed. We consider our view of this risk of price shock in detail below, starting at Paragraph G25.

G21 We welcome your views on whether we have accurately characterised the risk of price shocks and how material this is likely to be in the setting of DPP3.

G22 We are considering whether we need a new IM mechanism to mitigate price shock risk. We have begun work on our specification of price IM to consider whether introducing an IM mechanism to allow a DPP to implement a limit on the annual percentage increase in forecast revenue from prices could be a way to mitigate the price shock risk. We have published a notice of intention to allow us to commence consultation on a possible IM amendment.[202]

G23 Following your views on whether there is a risk of unworkability of a 'limit on forecast allowable revenue as a function of demand' mechanism for DPP3 and the risk of price shocks, we will consider whether a new mechanism is needed in the specification of price IM.

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[201] *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26 (consolidated 3 April 2018), clause 3.1.1(2)

[202] Commerce Commission "Notice of Intention: Proposal to Amend Input Methodologies for Electricity Distribution Services" (15 November 2018).

G24 If we decide to propose an IM amendment, we would do so at the same time as our draft DPP3 decision.[203]

Drivers of price shocks

G25 There are two drivers of price shocks that are relevant to our DPP3 decisions, being volatility in forecast allowable revenue and volatility in forecast quantities. These two drivers will act together to create a potential for an overall price shock. For example, an increase in forecast allowable revenue and a reduction in forecast average quantities could combine together to create a potential for an overall price shock.

G26 There are other drivers of price shocks, such as pricing decisions by an EDB for a particular load group and pricing decisions by an electricity retailer, but these drivers are outside the scope of our DPP3 decisions.

G27 We consider below the two drivers that are relevant to our DPP3 decisions:

G27.1 volatility in forecast allowable revenue. We are particularly concerned that volatility in some recoverable costs may be larger than in the current and previous regulatory periods. We discuss this volatility of recoverable costs below starting at Paragraph G29.

G27.2 volatility in forecast quantities. At this stage, we do not consider that volatility in forecast quantities is necessarily an issue that must be addressed through a control. We discuss this below starting at Paragraph G34.

G28 We invite submissions on whether our concerns about volatility in quantities are valid, and how any concerns might be addressed.

[203] As required under sections 52V(1) and 52X of the Act, when beginning work on a proposed IM amendment, we must publish a notice of intention outlining the process that will be followed and the proposed timeframes for the amendments.

Volatility of recoverable costs

G29 We consider that price volatility in DPP3 may be driven by some recoverable costs that do not apply in the current regulatory period. Some recoverable costs of significant magnitude will apply for the first time, such as IRIS recoverable costs,[204] while if a new transmission pricing methodology (TPM) is applied, the Transpower lines services recoverable cost could cause a significant price increase for some EDBs.[205]

G30 IRIS recoverable costs, particularly the 'opex incentive amount' component of the 'IRIS incentive adjustment', could significantly increase from one year to the next, especially when operating expenditure changes from a negative to a positive recoverable cost.

G31 A change in the TPM by the Electricity Authority could cause a significant increase in forecast allowable revenue for some EDBs, as a result of an increase in the Transpower lines services recoverable cost.[206]

G32 We consider that there may be other drivers which cause a significant increase in forecast allowable revenue. We propose responding to the IRIS and TPM drivers for DPP3 as we consider that these drivers could cause a significant increase in an EDB's forecast allowable revenue. Addressing the IRIS and TPM drivers would also address any other drivers of increase in forecast allowable revenue.

G33 We invite your views on whether IRIS and TPM recoverable costs could cause a significant increase in EDB's forecast allowable revenue for DPP3. We also invite your views on whether other recoverable costs could cause a significant increase in EDB's forecast allowable revenue for DPP3.

Volatility in forecast quantities

G34 Our IM change in the form of control to a revenue cap means that any reduction in forecast quantities supplied will generally translate into price increases as an EDB seeks to restore its revenue to the allowable limit.

G35 We do not propose any control to specifically mitigate any risk of price shocks that arise from a reduction in quantities.

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[204] *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26 (consolidated 3 April 2018), clause 3.1.3(1)(a).

[205] *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26 (consolidated 3 April 2018), clause 3.1.3(1)(b).

[206] Ibid.

G36 A catastrophic event could cause a significant reduction in quantities supplied, with a corresponding step increase in prices to restore revenues. We consider that the existing EDB IM provisions, specifying that a DPP may be reconsidered if a catastrophic event has occurred,[207] provide an appropriate mechanism for responding to a significant reduction in quantities caused by a catastrophic event.

G37 We invite your views on whether the existing IM provisions, specifying that a DPP may be reconsidered if a catastrophic event has occurred provide an appropriate mechanism for responding to a significant reduction in quantities caused by a catastrophic event.

Workability of the implementation of the limit on forecast allowable revenue as a function of demand

G38 We consulted on an illustrative implementation of the IM 'revenue as a function of demand' limit mechanism in the draft decision for the 2017 reset of the gas transmission DPP.[208]

G39 The illustrative implementation avoids some of the problems that can arise from price restructurings, but it still relies on the continuity of a number of pricing metrics from one year to the next. We decided not to apply it to the 2017 gas transmission DPP reset, given the proposed price restructuring that First Gas was contemplating in a new gas transmission access code. As noted in the reasons paper for the final decision, we considered that the revenue class approach would not be workable in the context of the First Gas proposed access code.[209]

G40 We are concerned that similar challenges could emerge if we were to apply the illustrative implementation to EDBs for DPP3. For example, a change from the pricing structures used by most EDBs (ICP pricing) to grid exit pricing could be particularly problematic.

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[207] *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26 (consolidated 3 April 2018), clauses 4.5.1, 4.5.6(1)(a)(i), 4.5.6(2) and 4.5.7.

[208] The illustrative implementation was set out in Schedule 6 to the draft determination that formed part of the consultation papers for the draft decision. The reference to that draft decision is: Commerce Commission, "Draft Gas Transmission Services Default Price-Quality Path Determination 2017", 10 February 2017, Schedule 6.

[209] Commerce Commission, "Default price-quality paths for gas pipeline businesses from 1 October 2017, Final Reasons Paper", 31 May 2017, Paragraphs F21 – F27.

G41 We consider that very few pricing metrics (such as $/day, $/kWh, $/monthly maximum kVA demand) have continuity in a transition to grid exit point pricing (GXP). We explore this lack of continuity through the following examples:

G41.1 A $/day fixed charge applies to most ICP pricing methods, but a change to GXP pricing may result in no equivalent charge.

G41.2 We consider that distributed generation such as rooftop photovoltaic generation could be problematic in a change from ICP pricing to GXP pricing. An EDB may charge for both imports and exports of kWh amounts equally, while GXP data will net off all the distributed generation from the demand. This could lead to a situation where a kWh charging metric could change significantly from one year to the next where the actual kWh quantities have not changed.

G41.3 We consider that capacity charges could be problematic in a similar way to the problem with distributed generation. We consider that the capacities used for capacity charges could lack continuity in a transition to GXP pricing, as total capacities charged for in ICP pricing would be typically higher than the capacity used for GXP pricing. This difference would arise from diversity effects.

G42 We welcome your views on whether the illustrative mechanism referred to at paragraph G38 would be workable. In particular we are interested in your views on whether our concerns about the continuity of transitioning to GXP pricing are valid. We also welcome any alternative to the illustrative method for implementing the limit on forecast allowable revenue as a function of demand that would address our workability concerns.

Volatility of quantities arising from irrigation demand

G43 We do not currently have information indicating whether the quantities for an EDB with a large irrigation demand could be volatile from dry or wet summers to the extent of causing a price shock in a subsequent year, and we seek submissions on this.

Limit on the accumulation of credits from voluntary undercharging

Voluntary undercharging introduced as a result of the IM review

G44 As a result of the 2016 IM review, we introduced a cap on the accumulation of voluntary undercharging credits as a key feature of the revenue cap wash-up mechanism.[210]

G45 Under the EDB IM, each EDB must for each disclosure year calculate and record any 'voluntary undercharging amount foregone'. For a DPP, 'voluntary undercharging amount foregone' is an amount of revenue permanently foregone, in accordance with the manner specified in our DPP determination, where the EDB has intentionally and voluntarily undercharged revenues relative to the amount allowed in the DPP.

Our proposed approach for DPP3

G46 We intend to specify a mechanism in our DPP3 determination for calculating voluntary undercharging amount foregone. In our DPP3 calculation of the applicable wash-up amount for an assessment, we intend to:

G46.1 introduce a 'pricing floor' as the 'forecast allowable revenue' multiplied by 'voluntary undercharging threshold', where 'voluntary undercharging threshold' is a percentage value set in the DPP determination;

G46.2 specify that 'voluntary undercharging amount foregone' is the 'pricing floor' minus the 'forecast revenue from prices' where an EDB's 'forecast revenue from prices' is less than the 'pricing floor'; and

G46.3 specify that 'voluntary undercharging amount foregone' is nil where an EDB's 'forecast revenue from prices' is not less than the 'pricing floor'.

G47 We propose that the value of the 'voluntary undercharging threshold' be 90%, and discuss the choice of this value at Paragraph G58 and G48.

G48 The method for calculating the 'voluntary undercharging amount foregone' at Paragraph G46 above effectively compares the 'forecast allowable revenue' with the 'forecast revenue from prices'.

G49 Our proposed approach reflects the cumulative undercharge because 'forecast allowable revenue' includes the wash-up balance, and that amount reflects the cumulative undercharging from previous years.

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[210] Input methodology review decisions: "Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower" (20 December 2016), para 142 and IM clause 3.1.3(13)(a).

G50 If an EDB consistently sets prices such that in each year its actual revenue is less than that year's costs,[211] that EDB would have an ever-increasing wash-up balance which would eventually result in an amount of 'voluntary undercharging amount foregone'.

G51 We invite your views on how we intend to specify the mechanism in our DPP3 determination for calculating 'voluntary undercharging amount foregone'.

Rationale for our approach to voluntary undercharging

G52 We propose introducing this mechanism as we do not consider the building up of a large credit balance from undercharging to be desirable, as it may lead to price shocks when that balance is recovered.

G53 Our proposed voluntary undercharging mechanism is a relaxation of the 'distribution price' and 'pass-through balance' mechanisms in the DPP2 determination, as it allows some accumulation of credits.[212]

G54 We published a guidance note in May 2017, which sets out guidance on the DPP2 compliance requirements at paragraphs 5 to 11 of that note, noting that any intentional undercharge should be reflected in the distribution prices and not the pass through prices.[213] The DPP2 distribution price mechanism does not provide any way of accumulating credits.

G55 Our proposed approach does not involve a simple accumulation of a series of forecast undercharge amounts. Our proposed approach relies on the wash-up balance, which implicitly includes the washing up of forecasting errors in previous years' estimates of CPI, quantities, and pass-through and recoverable costs.

G56 The undercharging mechanism we propose at Paragraph G46 above ensures that an EDB, when setting prices, will always have sufficient information to calculate precisely how much revenue, if any, it would forgo. The EDB should always be able to adjust its proposed prices to ensure it does not forgo revenue.

G57 We consider that the 'voluntary undercharging threshold' provides some flexibility to manage the inevitable forecasting errors that arise in making quantity forecasts and forecasts of pass-through and recoverable costs. The EDB may use this flexibility to smooth pricing variations from year to year while not permanently forgoing revenue.

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[211] "that year's costs" comprise net allowable revenue and pass-through and recoverable costs.

[212] *Electricity Distribution Services Default Price-Quality Path Determination 2015* [2014] NZCC 33 (28 November 2014), Clause 8.

[213] Commerce Commission, "General comments on the default price-quality path compliance statements submitted by electricity distribution businesses for the 2016 assessment period", May 2017,

The voluntary undercharging threshold proposal of 90%

G58 We propose specifying the voluntary undercharging threshold at 90% in our DPP3 determination. We consider that values significantly higher or lower than 90% could give rise to problems. We examine this through the following two examples:

G58.1 If an EDB were allowed to set prices such that the 'forecast allowable revenue' was 85% of the fully priced level, consumers could subsequently have at least a 17.6% average price increase from the EDB fully charging in a later year.[214]

G58.2 If an EDB were to forgo revenue if it were to set prices lower than 95% of the fully priced level, then this would give the EDB only a narrow range (from 95% to 100%) of average prices within which to manage the many sources of price volatility.

G59 We welcome your views on the value of the voluntary undercharging threshold we should specify in our DPP3 determination.

[214] The value of 17.6% is 1/85% -1, and represents the increase from 85% of a charge to 100%. This ignores time value of money effects which would increase it by more than this.

Attachment H Proposed changes to the financial model

Purpose of this attachment

H1 The purpose of this attachment is to set out the proposed changes to the financial model used for setting the 2015 EDB DPP (2015 model) to create the first draft of the financial model which may be used for the EDB DPP3 (draft 2020 model)[215]. A copy of the draft 2020 model is being released with this issues paper.

Summary

H2 The 2020 model has been based on the 2015 model with the small number of changes discussed in this attachment. The changes arise, either directly or indirectly from the IM changes from the 2016 IM review.

H3 The changes primarily arise from the change in form of control from a weighted average price cap to a revenue cap with wash-up. This change in form of control was made as part of the 2016 EDB IM review.

H4 Input data to the draft 2020 model is generally unchanged from the data used in the 2015 model. The draft 2020 model does not give an early indication of likely changes to allowable revenues.

H5 We note that the draft 2020 model is preliminary and, as part of our consultation on the DDP3, changes will be required before we publish our decision for DPP3. A further draft will be released as part of the draft decision, and that version will contain updated data. That version will be further updated to take account of EDBs' 2019 AMP forecasts and will be released as part of the updated draft decision. The final decision will be released with the financial model used to establish starting prices.

Changes to the 2015 model to create the draft 2020 model

H6 The proposed changes to the 2015 model largely reflect that the form of control is changing from a weighted average price cap using lagged quantities to a revenue cap.

Constant price revenue growth

H7 The 2015 model reflected that the form of control was a price cap by rolling forward the time series of revenue amounts by increasing the previous year's revenue forecast by, amongst other factors, the forecast CPRG.

[215] Commerce Commission "Financial-model-EDB-DPP-2015-2020" (28 November 2014).

H8 The change in form of control to a revenue cap means that the roll-forward formula no longer calculates such an increase, and the CPRG data input is no longer required.

Accelerated depreciation

H9 The 2016 IM review provided for an accelerated depreciation regime under which an EDB could apply for a discretionary net present value-neutral shortening of their remaining asset lives. This regime is discussed in Attachment G of this paper.

H10 In addition to the IM changes we made in 2016, we recently made further IM amendments in November 2018 relating to implementation changes to the accelerated depreciation IM provisions.[216] These IM amendments included:

H10.1 changing the date by which applications for accelerated depreciation must be received.

H10.2 having no acceleration of depreciation in the year immediately following the 'base year'.[217] This will be implemented by setting the 'adjustment factor' for all EDBs for a disclosure year after the base year, but before the start of the next DPP regulatory period to 1.[218]

H10.3 a clarification of the calculation of the remaining asset life to be used when calculating adjusted depreciation. The draft 2020 model does not require any change in relation to this clarification.

H11 Changes made to the 2015 model in relation to accelerated depreciation to produce the proposed draft 2020 model were:

H11.1 providing an additional data input row in the 'Inputs' sheet for the adjustment factor for each EDB. For EDBs for which no adjustment factor has been approved, a value of '1' is to be entered.

[216] Commerce Commission "Electricity distribution services input methodologies (accelerated depreciation) amendments determination 2018" (8 November 2018); Commerce Commission "Amendments-to-electricity-distribution-services-input-methodologies-determination-in-relation-to-accelerated-depreciation-Reasons-paper" (8 November 2018)

[217] Clause 1.1.4(2) of the IM determination - "base year" is defined as meaning "the disclosure year selected by the Commission". We propose that the base year will be the year ending 31 March 2019

[218] The adjustment factor is the percentage amount by which the average remaining lives of assets in existence at the start of the base year is adjusted.

H11.2 in the 'RAB' sheet calculating the remaining asset life of existing assets for a disclosure year in accordance with EDB IM Clause 4.2.2(3)(a)(ii), the remaining life is:

> *adjustment factor* × (**aggregate opening RAB value for existing assets** for the **base year** ÷ **total depreciation** for the **base year**)
>
> *less* the number of **disclosure years** from the **base year** to the **disclosure year** in question

H11.3 setting the 'adjustment factor' in the 'RAB' sheet for the disclosure year ending 31 March 2020 to 1.

H11.4 entering cell comments in some of the cells in Row 18 of the 'RAB' sheet to provide details of how the calculations have been set out.

Other regulated income

H12 In the 2015 EDB DPP reset, a forecast of 'other regulated income' was an input to the 2015 model, and was accounted for in calculating the BBAR by effectively treating the other regulated income amount as a negative building block.

H13 As a result of our 2016 IM review, we set a requirement that the 'actual revenue' amount used in the wash-up must include 'other regulated income'. In the wash-up mechanism envisaged for the 2020 DPP, the 'actual other regulated income' amount will fully account for other regulated income, so a forecast amount must not be taken into account as this would double-count other regulated income. This proposed treatment of other regulated income is the same as that applied in the Powerco CPP.

H14 To implement the proposed changes, the other regulated income negative building block has been removed from the building block calculations in the draft 2020 model as have the inputs required for other regulated income.

Allowable notional revenue and ΔD

H15 The 2015 model, being based on a weighted average price cap with lagged quantities, required the calculation of allowable notional revenue (ANR). This was calculated from the MAR.

H16 The change in form of control to no longer using lagged quantities means that the calculation may now stop at the MAR, and the calculation of ANR from the MAR is not required. This in turn means that the ΔD parameter (being the CPRG for the two year period ending 31 March 2020), which was required to calculate the ANR from MAR, is no longer required.

H17 The calculations of ANR and ΔD have accordingly been deleted.

Clawback

H18 The 2015 model contained clawback calculations, and reflected provisions to clawback revenues relating to the regulatory period that ended 31 March 2015, during the current regulatory period ending 31 March 2020.

H19 No such clawback provisions are required in the proposed draft 2020 model and the ones in the 2015 model have been deleted in producing the draft 2020 model.

Self-documenting model

H20 The draft 2020 model contains the sheet ‘Description’, which documents in more detail the proposed changes to the 2015 model.

Attachment I Statutory requirements for default price-quality path resets

Purpose of this attachment

I1 This attachment provides an overview of:

I1.1 the formal requirements and limitations on how we set DPPs as set out in the Commerce Act;

I1.2 the requirement to promote energy efficiency incentives;

I1.3 the requirement to apply relevant IMs in determining a DPP; and

I1.4 other regulatory influences on EDB performance.

Formal requirements and limitations on how we set DPPs

I2 As mentioned in Chapter 3, Part 4 of the Act sets out several formal requirements and limitations on how we set DPPs. These are contained in sections 52P, 53M, 53O, and 53P, and covered in Table I1 overleaf.

Requirement to promote energy efficiency incentives

I3 Section 54Q of the Act states that in regulating electricity lines services, the Commission must promote incentives, and avoid imposing disincentives, for distributors to invest in energy efficiency and demand-side management, and to reduce energy losses.

I4 This objective is subject to the overall objectives set out in the Part 4 purpose. We discuss our approach for DPP3 to the section 54Q requirement in Attachment F.

Requirement to apply relevant IMs in determining a DPP

I5 IMs are the rules, requirements and processes we determine that must be applied to regulation under Part 4. We must apply the IMs when we set price-quality paths and set information disclosure requirements. Regulated businesses are also required to apply the IMs.

I6 The IMs cover matters like how assets are to be valued, depreciated and revalued, how we estimate the costs of capital, how common costs can be allocated and how tax should be treated. The IMs also set out when a DPP can be reconsidered. The current IMs applying for EDBs is the *Electricity Distribution Services Input Methodologies Determination 2012,* as amended most recently in November 2018.

Table I1 Formal requirements and limitations on how we set DPPs

Section	Title	Requirement
Section 52P	Determinations by the Commission We must make determinations under this section specifying how the relevant forms of regulation apply to suppliers of regulated goods and services	Determinations must: • set out, for each type of regulation to which the goods or services are subject, the requirements that apply to each regulated supplier; • set out any time frames (including the regulatory periods) that must be met or that apply; • specify the IMs that apply; and • be consistent with Part 4.
Section 53M	Content and timing of price-quality paths Also allows price-quality paths to include incentives for suppliers to maintain or improve their quality of supply, and allows us to prescribe quality standards in any way we consider appropriate	Sets out: • either the maximum price or prices that may be charged by a supplier or the maximum revenues that may be recovered by the supplier; • the quality standards the supplier must meet; and • the regulatory period (5 years, or 4 years if the Commission considers that a shorter period would better meet the purposes of Part 4. • the next DPP must be reset at least four months before the end of the current DPP regulatory period (on or before 30 November 2019).
Section 53O	Specific requirements for DPP determinations	Sets out requirements for: • starting prices; • the rate of change, relative to the CPI; • quality standards; • the date the DPP takes effect; • the date by which any proposal for a CPP must be received; and • the date by which compliance with the DPP must be demonstrated.
Section 53P	Requirements when resetting the default price-quality path	Requires us to amend the DPP determination for the forthcoming regulatory period (in this case, from 1 April 2020) before the end of the current regulatory period (in this case, 31 March 2020).
		When resetting the DPP under section 53P, starting prices must not seek to recover any excessive profits made during any earlier period, and must be either: • the prices that applied at the end of the preceding regulatory period; or • prices that are based on the current and projected profitability of each supplier.
		The rate of change we set must be based on the long-run average productivity improvement rate achieved by either or both of suppliers in New Zealand, and suppliers in other comparable countries, of the relevant goods or services. It may take into account the effects of inflation on the inputs of suppliers of the relevant goods and services.

Other regulatory influences on performance

I7 Default/customised price-quality regulation is just one of the regulatory influences on the performance of electricity distributors. For example, the service quality that electricity distributors provide is also influenced by a range of statutory obligations and voluntary arrangements, including:

I7.1 the Consumer Guarantees Act (including changes in regard to lines businesses);

I7.2 the Electricity Act 1992;

I7.3 power voltage regulation;

I7.4 voluntary GSLs; and

I7.5 electricity governance (connection of distributed generation) regulations.

I8 In addition, the requirement to disclose information under Part 4 increases transparency, which creates incentives for distributors to improve performance. The increased transparency is because information disclosure regulation is intended to allow interested persons to assess whether the Part 4 purpose is being met.[219]

[219] Under information disclosure regulation, distributors are required to disclose information. We may monitor and analyse the information, and we must publish summary and analysis of the information to promote greater understanding of the performance of distributors, their relative performance, and changes in performance over time (section 53(B)(2) of the Act).