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Proposed Quality Targets and Incentives for Default Price-Quality Paths From 1 April 2015

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TABLE OF CONTENTS

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1. Introduction

Purpose of paper

1.1 This paper provides a detailed explanation of our proposed service quality targets for the default price-quality paths for electricity distributors from 1 April 2015. Details on how you can provide your views can be found in Chapter 7.

1.1.1 Submissions are due by **29 August 2014**.

1.1.2 Cross-submissions are due by **12 September 2014**.

1.2 This paper should be read in conjunction with the paper that outlines and explains the default price-quality paths that we propose to put in place from 1 April 2015 (Main Policy Paper).[1]

Proposed revenue-linked incentive scheme for quality of service

1.3 Our draft decision on the default price-quality paths for electricity distributors proposes a revenue-linked incentive scheme for quality of service. Implementing a revenue-linked quality incentive scheme requires several choices to be made about the:

1.3.1 normalisation methodology to be used;

1.3.2 quality incentives that apply;

1.3.3 reliability targets;

1.3.4 revenue at risk; and

1.3.5 caps, collars and incentive rates

1.4 It is important to consider these components of the revenue-linked quality incentive scheme as a package, although we discuss each separately in this paper.

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[1] Commerce Commission "Proposed default price-quality paths for electricity distributors from 1 April 2015" 4 July 2014.

Steps we took to determine targets and incentives for quality of service

1.5 We discuss each of the main steps that were taken to model targets and incentives for quality of service. In summary these include:

1.5.1 Requesting from distributors interruption data since 1 April 2004 and compiling a dataset of individual interruptions for modelling;

1.5.2 Calculating boundary system average interruption duration index (SAIDI) and system average interruption frequency index (SAIFI) values consistent with our proposed methodology;

1.5.3 Calculating normalised daily and annual SAIDI and SAIFI values for each distributor consistent with our proposed methodology; and

1.5.4 Calculating targets, caps and collars, revenue at risk, and incentive rates for both SAIDI and SAIFI consistent with our proposed decisions.

Material that we will publish on our website alongside this paper

1.6 Material that we will publish on our website alongside this paper includes:

1.6.1 raw data on interruptions as provided by distributors in response to a section 53ZD request, as well as our calculations of boundary, normalised daily, and normalised annual SAIDI and SAIFI values;

1.6.2 proposed drafting of the determination (draft determination).

1.7 Our model used to determine the targets, caps and collars, and incentive rates for quality of service was published alongside our Main Policy Paper on 4 July 2014.

2. Proposed quality incentives

Purpose of this chapter

2.1 This chapter explains the incentives that distributors are expected to face under the revenue-linked quality incentive scheme we have proposed.

Overview of approach

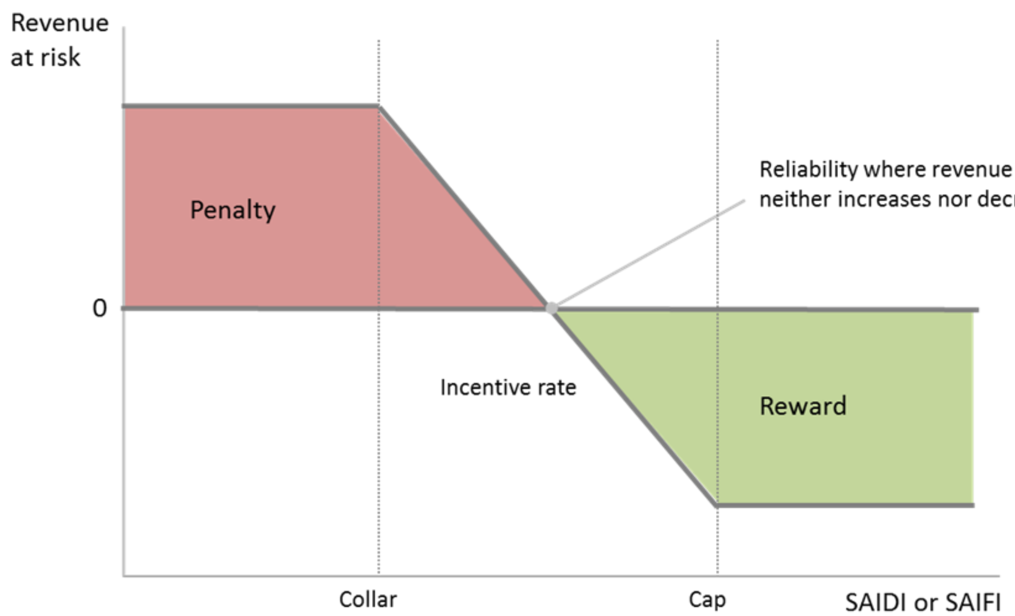
2.2 By implementing a revenue-linked quality incentive scheme, we want to promote distributors' incentives to provide services at a quality that consumers demand, as required by section 52A(1)(b) of the Act. In turn, this affects distributors' incentives to invest and maintain assets, consistent with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

2.3 Our view is that a revenue-linked quality incentive scheme is an appropriate mechanism to incentivise distributors to maintain and improve service quality.

Incentives under a revenue-linked quality incentive scheme

2.4 Under the proposed incentive scheme, a distributor's revenue would be dependent on the average reliability of the network. If reliability was better than the target, then future revenues would be increased. Likewise, if reliability was worse than the target, then future revenue would be reduced. Figure 2.1 illustrates how a revenue-linked incentive scheme would operate in practice.

Figure 2.1: Example of a revenue-linked quality incentive scheme



2.5 The reliability measures that we propose to use for the revenue-linked quality incentive scheme are SAIDI and SAIFI. Figure 2.1 demonstrates the relationship between revenue at risk, the SAIDI cap and collar, and the SAIDI incentive rate. For reasons of intuition, the remainder of this paper:

2.5.1 a cap refers to the maximum SAIDI or SAIFI at which marginal penalties no longer accrue; and

2.5.2 a collar refers to the minimum SAIDI or SAIFI at which marginal rewards no longer accrue.

2.6 Under this incentive scheme the revenue a distributor is penalised for under-performing the reliability target increases up to a reliability cap. The maximum reward a distributor receives from outperforming the reliability target is also subject to a limit that corresponds to reliability collar.[2]

2.7 The size of the revenue penalty or reward, up to the cap or collar, is determined by how much the distributor departs from the reliability target. The 'incentive rate' is the change in revenue resulting from a unit change in reliability.

2.7.1 a higher incentive rate, ie, a steeper slope in the incentive rate line, leads to larger changes in revenue from a given change in reliability.

2.7.2 the incentive rate beyond the cap or collar is zero, ie, there are no additional automatic penalties or rewards for reliability exceeding either the cap or collar.

2.8 A revenue-linked incentive for reliability will provide better incentives for each distributor to:

2.8.1 understand the cost-quality trade-off on their network; and

2.8.2 manage reliability levels recognising the costs and benefits to consumers.[3]

2.9 In order to maximise its economic return a distributor will be incentivised to improve and/or maintain its understanding of the cost of providing a given level of reliability. For example, the cost of tree cutting in a particular location can be compared to the reward provided (or penalty avoided) for the expected outcome in reliability.

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2 Note that in our process and issues paper and main reasons paper a cap referred to the level to the maximum level of reliability—where reliability was measured as the inverse of SAIDI or SAIFI.

3 These benefits generally appear to be recognised by the ENA working group on quality of service.

2.10 The proposed incentive scheme will also encourage a distributor to take action to deliver a level of reliability that better reflects consumer demands. For example, the penalty and reward provided by the incentive rate could depend on the characteristics of the network and, potentially, consumer demands.[4]

2.11 A benefit of a revenue-linked incentive scheme is that it helps reduce uncertainty for distributors and consumers. Distributors and consumers will have more certainty on how the Commission will assess and enforce compliance with reliability standards and other quality measures.[5] The financial outcome of a distributor's deviation in quality from the quality target will be calculable year to year.

Improvement on existing 'pass/fail' approach

2.12 In our view, a revenue-linked quality incentive scheme represents an improvement on the existing approach, under which enforcement action may be taken if a distributor exceeds the reliability limit for any two out of three years.[6] A distributor does not receive a financial reward for having a greater reliability than the reliability limit. The existing approach is therefore frequently described as a 'pass/fail' approach.

2.13 The Electricity Networks Association (ENA) quality of supply and incentives working group and other submissions generally support moving to a more incentive based approach to the quality standard.[7]

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4 Whether a distributor is incentivised to provide a level of reliability that reflects consumer demands will depend on the parameter settings of the mechanism.

5 We also expect there to be limited, if any, increase in compliance costs for distributors, and a reduction in the amount of resources the Commission has to dedicate to assessing compliance with the quality path.

6 Average duration and frequency of interruption measures are susceptible to variation resulting from extreme events and natural variability. Without measures to mitigate these factors, quality breaches may occur despite there being no material deterioration in underlying reliability performance. As a solution we used buffers to calculate the reliability limit, normalisation to adjust for maximum event days and a multi-year assessment to reflect performance over time and further mitigate data variability.

7 As examples of support from submitters refer to: Electricity Networks Association "Pathway to Quality: Quality of Service Incentives Working Group Report" February 2014 page 50; Vector "Submission to Commerce Commission on the Default Price-Quality Paths from 1 April 2015: Process and issues paper" 30 April 2014, paragraph 155; Alpine Energy Limited "Submission to the Commerce Commission on Default Price-Quality Paths from 1 April 2015 for 17 electricity distributors: Process and issues paper" 30 April 2014, paragraph 2.2. As an example of opposition refer: Eastland Network "Submission to Commerce Commission: Default Price-Quality Paths from 1 April 2015 for 17 electricity distributors - Process and Issues Paper" 30 April 2014, p.11.

2.14 The reliability limit was set with reference to performance from 2005 to 2009, with an allowance included for sampling variability. Broadly, the allowance was equal to one standard deviation from the mean during this 'reference period'. This allowance:

2.14.1 significantly reduced the likelihood of wrongly identifying a worsening in underlying reliability when in fact there was no deterioration (ie, a false positive); but

2.14.2 increased the likelihood that underlying reliability may materially deteriorate without being non-compliant with the quality standard.

2.15 In addition, we have identified a number of other weaknesses with the existing approach. We discussed the adverse incentives in the Process and Issues Paper. For example, the use of a two out of three year assessment rule may have provided incentives for distributors to exceed the reliability limit once but not two times in a row.

Annual assessment of revenue rewards and penalties

2.16 We proposed that SAIDI and SAIFI will be assessed annually and will form part of the distributor's compliance requirements. Using the methodology as prescribed in the determination, distributors will calculate the revenue-linked reward or penalty applicable for the assessed year.[8]

2.17 Revenue will be adjusted by the applicable reward or penalty in the financial year immediately following the derivation of the reward or penalty. Consequently, it is necessary for a one-year lag to allow for performance to be assessed and calculated before it can be applied to revenue.

2.18 We do not consider that banking of rewards or penalties over the regulatory period is appropriate. Rewards and penalties should be passed onto the distributor as soon as practically possible after the performance has been assessed.

Scope for enforcement action

2.19 Failure to meet the SAIDI target or SAIFI target would constitute non-compliance with the quality standards. The Commission may take enforcement action and seek pecuniary penalties under section 87 of the Commerce Act, or criminal sanctions under section 87B of the Commerce Act, for failure to meet the quality standards.

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[8] Commerce Commission "Electricity distribution services default price-quality path draft determination" 18 July 2014, Clause 9.

2.20 In the case of unintentional breaches, we do not propose to take enforcement action for performance worse than the quality targets but still the below the cap except in exceptional circumstances. The revenue-linked quality scheme will therefore provide distributors with greater certainty on when the Commission is likely to take enforcement action for breaches of the quality standards.

Treatment of spur assets and major transactions

2.21 Following a major transaction or purchase of spur assets (including spur assets forecast to be purchased in the disclosure year prior to the start of the regulatory period), a distributor must adjust the applicable quality standards based on the historic performance of the assets sold or acquired. This will include determining new quality targets for SAIDI and SAIFI, as well as the caps and collars associated with the new quality incentives.

2.22 We propose that distributors re-calculate their quality targets using the historic average daily SAIDI and SAIFI values for the assets purchased or sold. The associated SAIDI and SAIFI caps and collars will be increased or decreased by an amount equal to the percentage increase in the quality targets.

2.23 We have not currently proposed an approach to re-calculating the boundary values, or how these boundary values will apply to the SAIDI and SAIFI values used to re-calculate the quality standards. As discussed in the reasons paper, we seek parties' views on the normalisation methodology. We will take into consideration submissions on the normalisation methodology in our final decision on how to re-calculate SAIDI and SAIFI targets following a major transaction.

Proposed action for Orion New Zealand

2.24 Orion will be subject to the default price-quality path for the 2019/20 year as it comes off of its customised price-quality path.

2.25 We propose to place Orion under the same general revenue-linked quality incentive scheme mechanism as other regulated distributors. However, we propose adjustments to reflect Orion's unique situation due to a substantial programme of work following large natural disasters. In particular, we propose to:

2.25.1 set Orion's SAIDI and SAIFI reliability targets equal to the SAIDI and SAIFI reliability limits for the last year of the customised price-quality path, ie, the 2018/19 year;

2.25.2 set the caps and collars for the SAIDI and SAIFI incentive mechanisms equal to the respective reliability target. This implies an incentive rate and revenue at risk of zero; and

2.25.3 retain the normalisation methodology, including the SAIDI and SAIFI boundary values, as applied during the customised price-quality path period.

2.26 The proposed adjustments for Orion are appropriate, because:

2.26.1 currently, we do not have interruptions data categorised by planned and unplanned;

2.26.2 historic interruptions data before or during the customised price-quality path period is likely to be unrepresentative of Orion's future network. Future resets may require adjustments to be made to Orion's historic data;

2.26.3 in order to remain consistent with the methodology used to calculate the reliability targets, the normalisation methodology should remain the same as that for the customised price-quality path period; and

2.26.4 further enforcement action may be appropriate for a deterioration in reliability performance above the cap.

2.27 Some submitters support retaining a pass/fail approach to quality standards for Orion in the 2019/20 year, and at the next default price-quality path reset would place Orion on a revenue-linked quality incentive scheme.[9]

2.28 We support placing Orion under an unadjusted revenue-linked quality incentive scheme at the time of the 2020 default price-quality path reset. However, we consider that an adjusted revenue-linked quality incentive scheme for Orion is most appropriate for this default price-quality path reset.

2.29 At the expiration of Orion's customised price-quality path determination, Orion will be subject to the default price-quality path generally applicable to all suppliers in accordance with s 53X(1) (unless Orion applies for another customised price-quality path in accordance with s 53Q). Orion will then be subject to the terms of the default price-quality path, including the generally applicable rate of change and the generally applicable quality standards, including any generally applicable incentives we include in accordance with s 53M(2).

Quality-only customised price-quality path is an option for extreme events

2.30 Some submitters suggested that the quality-linked incentive scheme could be suspended where there are significant events that require significant repair work.[10] We do not consider that this is necessary given that:

2.30.1 limits are placed on daily SAIDI and SAIFI in the event of major event days;

2.30.2 targets that have been derived will incorporate any significant events during the reference period; and

2.30.3 no interpretation of what would constitute an such an event has been provided.

2.31 If a distributor faces a significant and prolonged event that would have a major impact on their quality assessment they may apply for a quality-only customised price-quality path.

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9 Orion New Zealand Limited "Submission on the default price quality path from 1 April 2015 for 17 distributors – process and issues paper" 30 April 2014, paragraph 26; Powerco "Submission on Default price-quality paths from 1 April 2015 for 17 electricity distributors: Process and Issues paper" 30 April 2014, paragraph 109.

10 For example refer to: PwC "Submission to the Commerce Commission on Default price-quality paths from 1 April 2015 for 17 electricity distributors: Process and issues paper - Made on behalf of 20 Electricity Distribution Businesses" 30 April 2014, paragraph 120; Unison Networks Limited "Submission on the Default Price-quality paths from 1 April 2015: Process and issues Paper" 30 April 2014, paragraph 76.

Potential future refinements of the quality incentive scheme

2.32 We are considering the inclusion of customer service and disaggregated reliability measures through information disclosure. Decisions on further refinement do not need to be made as part of current default price-quality paths. We discuss scope for further refinement of the quality incentive scheme in our Process and Issues Paper.[11]

2.33 Our current view is that development of the quality regime in future regulatory periods involves capturing some of the breadth of service quality that consumer's value. Submissions are generally supportive of future consideration of customer service measures.[12]

2.34 Disaggregating the average number and frequency of interruptions could provide a better measure of the quality of service received by customers of different classes or location.

2.35 Some submitters have expressed support for the development of new measures through the information disclosure regime. Potential customer service measures to develop and refinements to interruption measures are discussed by the ENA Quality of Supply and Incentives Working Group in its report.[13]

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11 Commerce Commission "Default price-quality paths from 1 April 2015 for 17 electricity distributors: Process and issues paper" 21 March 2014, paragraphs 4.52 to 4.57.

12 For example refer to: Vector "Submission to Commerce Commission on the Default Price-Quality Paths from 1 April 2015: Process and issues paper" 30 April 2014, paragraph 120.

13 Electricity Networks Association "Pathway to Quality: Quality of Service Incentives Working Group Report" February 2014.

3. Normalisation methodology for reliability targets

Purpose of chapter

3.1 This chapter explains the normalisation methodology for the proposed reliability targets.

Rationale for normalisation

3.2 Analysis of reliability data is often susceptible to variation from extreme events. Extreme events can lead the average duration and frequency of interruption measures to be unrepresentative of the underlying service reliability being provided by a distributor.

3.3 While there is an expectation that distributors can limit the disruption caused by such events, we consider that for more extreme events it is appropriate that some protection is provided against high impact interruptions when assessing quality performance.

3.4 Protection against major event days is implemented through boundary values for both SAIDI and SAIFI which, under the current regime, limits daily SAIDI and SAIFI to a maximum value for major event days.

Overview of the proposed methodology

3.5 The proposed normalisation methodology affects the calculation of reliability targets and the assessed annual reliability data for the next regulatory period. In turn, these impact on the revenue reward or penalty that may apply under the proposed scheme, and consequently, the incentives and outcomes created by the quality regime.

3.6 We propose that interruptions that are planned by the distributor be given a lower weighting than those that are unplanned. In particular:

3.6.1 unplanned interruptions will be given a 100% weighting, that is they are fully accounted for; and

3.6.2 planned interruptions will be given a 50% weighting, that is the impact of a planned interruption will be halved.

3.7 The SAIDI and SAIFI boundary values will only apply to unplanned interruptions. We view this as appropriate because major events that severely disrupt the network cannot be planned.

3.8 We propose that major event day normalisation is triggered for both SAIDI and SAIFI only when the SAIFI boundary is exceeded. We consider that SAIFI is a superior normalisation trigger than SAIDI because a major event is likely to affect a large number of customers.

3.9 In the event of a major event day, SAIFI will be replaced with the boundary value. SAIDI will be replaced with the boundary value only if both the SAIFI and SAIDI boundaries are exceeded.

3.10 We have assumed that a distributor can expect to have 2.3 major event days per year. Therefore, the boundary value for SAIDI and SAIFI is solved to achieve this expectation, as well as assuming a log normal distribution in the number and frequency of interruptions.

3.11 The rest of this attachment outlines in more detail:

3.11.1 the reasons for the decisions we have made;

3.11.2 the alternative options that we considered; and

3.11.3 the calculation of the boundary values for SAIDI and SAIFI.

Weighting planned and unplanned interruptions differently

3.12 We propose to give a lower weighting to interruptions that are planned by the distributor relative to those that are unplanned.[14]

3.13 This is appropriate as unplanned interruptions are generally more disruptive for consumers. Consumers have the ability to make alternative arrangements if notified an interruption will take place and distributors should not be unduly incentivised to delay or cancel planned work.

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[14] A planned interruption is an interruption where the distributor has provided at least 24 hours notice to the customer.

3.14 Many submissions agree that planned interruptions should be weighted lower than unplanned interruptions.[15] For example, the ENA reason that:

> Currently there are incentives for ENBs [electricity distributors] to defer planned work, in order to avoid planned outages if these outages would give rise to a potential breach … We do not consider that it is in the long term interests of consumers for planned work to be deferred simply to avoid a potential quality standard breach. Planned outages are generally less disruptive to consumers as they are notified in advance, and in many cases scheduled to minimise the impact on consumers.

3.15 We note that some overseas jurisdictions treat unplanned and planned interruptions differently. Our proposed methodology takes the same weightings as those used by Ofgem in the UK, where a planned interruption is weighted as half that of an unplanned interruption.[16]

Boundary values are applied to unplanned interruptions

3.16 The purpose of normalising major event days is to account for extreme events such that interruption measures are representative of the underlying service reliability level provided by a distributor.

3.17 As interruptions to the network resulting from these extreme events often are not planned we consider it appropriate that boundary values are derived from and applied to unplanned interruptions only. This differs from our current normalisation methodology where all interruptions were considered when calculating and applying a boundary value.

3.18 We consider planned interruptions to be entirely within the control of the distributors. In the event of a major event disrupting the network, distributors can choose to delay planned work to prioritise the unplanned work required on the network.

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15 For example, refer to: Eastland Network “Submission to Commerce Commission: Default Price-Quality Paths from 1 April 2015 for 17 electricity distributors - Process and Issues Paper” 30 April 2014, p. 11; Electricity Networks Association “Submission on default price-quality paths from 1 April 2015 for 17 electricity distributors: process and issues paper” 30 April 2014, paragraphs 80-82; Powerco “Submission on Default price-quality paths from 1 April 2015 for 17 electricity distributors: Process and Issues paper” 30 April 2014, paragraph 64; Vector “Submission to Commerce Commission on the Default Price-Quality Paths from 1 April 2015: Process and issues paper” 30 April 2014, paragraph 119.

16 OFGEM “Electricity Distribution Price Control Review: Final Proposals” November 2004, paragraph 4.7.

SAIFI boundary needs to be triggered for major event days to apply

3.19 We have considered three options on what should trigger a major event day, these are:

3.19.1 exceeding the SAIDI boundary as the trigger, consistent with the current methodology;

3.19.2 exceeding the SAIFI boundary as the trigger, which is our proposed option; and

3.19.3 using SAIDI and SAIFI independently as triggers, as proposed by some submitters.

3.20 Using SAIFI to trigger a major event day is appropriate as extreme events are most likely to affect a large number of customers, which distributors have no control over.

3.21 Distributors do have some control over the duration time of any outage resulting from a major event. We therefore consider that it may be inappropriate to use SAIDI as a trigger, given that there would be no incentive within this scheme to minimise the duration of an event once the boundary has exceeded.

3.22 ENA consider that that major event day normalisation of SAIDI and SAIFI should be independent of each other to ensure consistent treatment.[17] We consider that the SAIFI trigger can appropriately identify major event days while avoiding any potential perverse incentives using SAIDI as the normalisation trigger.

Major event days are replaced with a boundary value

3.23 In the event of a major event day, that is, when the observed SAIFI value for that day exceeds the SAIFI boundary value:

3.23.1 SAIFI will be replaced with the SAIFI boundary value

3.23.2 SAIDI will be replaced with the SAIDI boundary value if the observed SAIDI value for that day also exceeds the SAIDI boundary.

3.24 This approach of applying the boundary value for a major event day is consistent with our current approach and is illustrated in Figure 3.1 as Option 1. This option does not disincentivise a distributor’s optimal response to an interruption.

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17 Electricity Networks Association “Pathway to Quality: Quality of Service Incentives Working Group Report” February 2014, page 47.

3.25 We have considered various other replacements for the observed SAIDI and SAIFI in the event of a major event day, including some presented by submitters. These are illustrated in Figure 3.1 and include:

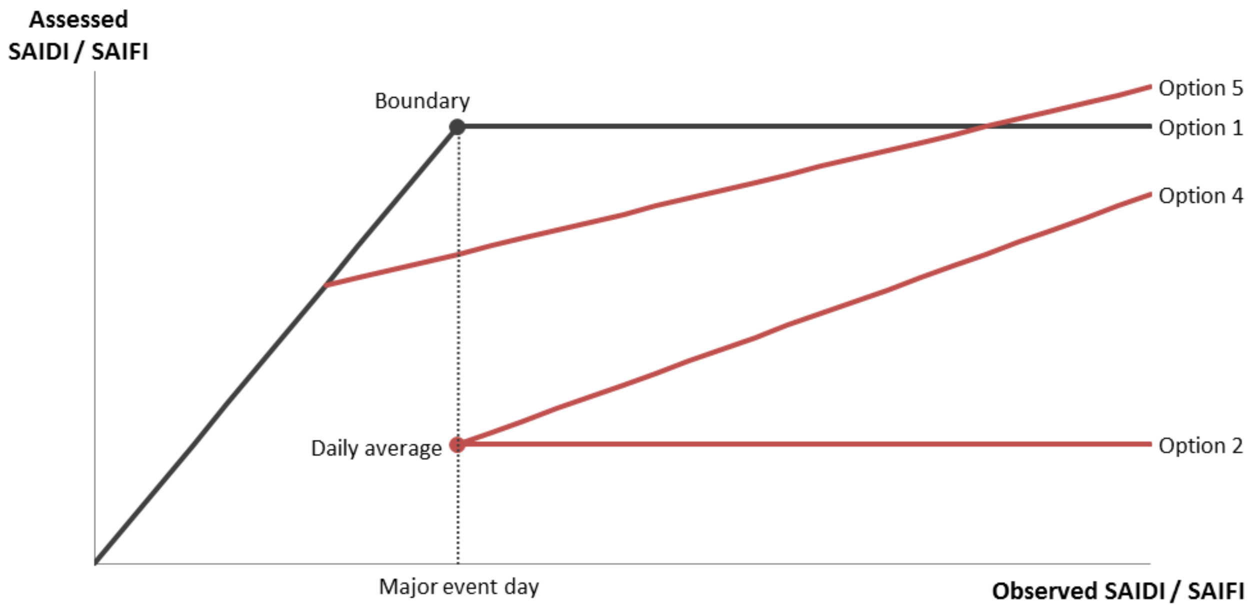
3.25.1 replacing with the daily average for the reference period (Option 2);

3.25.2 removing or zeroing out the major event day (Option 3);

3.25.3 replacing with the daily average, or some other value lower than the boundary value, and retaining a positive marginal incentive for further SAIDI and SAIFI in excess of the boundary value (Option 4); and

3.25.4 keeping or lowering the boundary value and retaining a positive marginal incentive for further SAIDI and SAIFI in excess of the boundary value (Option 5).

Figure 3.1: Options for adjusting maximum event days



Notes: The options displayed in this figure are for demonstration purposes and is not to scale. Observed values refer to SAIDI and SAIFI without any adjustment. Assessed values refer to SAIDI and SAIFI after a normalised adjustment in accordance with the options displayed. Option 3 would remove the interruption and is therefore not shown.

3.26 The ENA Working Group proposes that SAIDI and SAIFI on major event days be normalised to the daily average or zero. This approach was also supported by many submitters.[18] They reason that extreme events which are out of their control should be excluded from the dataset, consistent with what is done in some other regulatory jurisdictions including the UK and parts of Australia.

3.27 We considered both of these options as replacements to the current approach, as well as the option of some value between the daily average and the boundary value. However, under these scenarios, there may be an incentive for distributor to not provide the best possible quality performance if they are nearing a major event day.

3.28 It is not appropriate to replace any major event day with SAIDI or SAIFI values that may incentivise sub-optimal performance in order to achieve a major event day. We accept that there may be other pressures that distributors will face that will mitigate this risk to some degree—from distributors' customers for example.

3.29 We considered replacing actual reliability performance with the historic average, or some value lower than the boundary, in conjunction with applying a positive marginal incentive on further observed SAIDI and SAIFI, illustrated as Option 4 in Figure 3.1. This has the advantage of placing an incentive on distributors to minimise SAIDI and SAIFI after a major event day has been triggered. However, as above, there is risk that sub-optimal performance may be incentivised in order to reach the major event day trigger.

3.30 We also considered using the boundary—or lowering the boundary— in conjunction with applying a positive marginal incentive on further observed SAIDI and SAIFI, illustrated as Option 5 in Figure 3.1. This places some incentive on distributors to minimise SAIDI and SAIFI at all times. This option places no maximum on normalised SAIDI or SAIFI but limits the increase from the boundary to a small proportion of the observed increase—for example 10%.

3.31 In principle, we consider that marginal incentives to reduce the duration of an interruption should be present after normalisation. We seek submitter's views on this approach for the purposes of this reset.

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18 Electricity Networks Association "Pathway to Quality: Quality of Service Incentives Working Group Report" February 2014, p. 47. Supported by: Powerco "Submission on Default price-quality paths from 1 April 2015 for 17 electricity distributors: Process and Issues paper" 30 April 2014, paragraph 67; PwC "Submission to the Commerce Commission on Default price-quality paths from 1 April 2015 for 17 electricity distributors: Process and issues paper - Made on behalf of 20 Electricity Distribution Businesses" 30 April 2014, paragraph 64.

3.32 Unison and Vector expressed concern that our normalisation methodology is flawed in that too much weight is placed on extreme weather or other natural events. Given that reliability performance is to be revenue-linked Unison considers it would be inappropriate if bad weather determined outcomes.[19] We note that:

3.32.1 targets are based on a 10-year historical normalised average, consistent with assessed values going forward;

3.32.2 limiting extreme event days to boundary values do limit the impact on SAIDI and SAIFI; and

3.32.3 while many extreme event days may have an impact on revenue, this is countered by years that are relatively subdued.

Boundary values will be based on probabilities for each distributor

3.33 Currently, the SAIDI boundary value (B_{SAIDI}) is calculated as follows:[20]

3.33.1 $B_{SAIDI} = \exp(\alpha_{SAIDI} + 2.5\beta_{SAIDI})$, where:

3.33.1.1 α is the mean of the natural logarithm of each daily SAIDI in the non-zero dataset. Similarly, β is the standard deviation; and

3.33.1.2 a non-zero dataset excludes any day that does not have an interruption.

3.34 This normalisation methodology is based on a definition set out in IEEE-1366, a standard published by the Institute of Electrical and Electronics Engineers. IEEE 1366 states (at paragraph B5.1) that their methodology is:[21]

> based on consensus reached among Distribution Design Working Group members on the appropriate number of days that should be classified as Major Event Days.

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19 Refer to: Unison Networks Limited "Submission on the Default Price-quality paths from 1 April 2015: Process and issues Paper" 30 April 2014, paragraph 73; Vector "Submission to Commerce Commission on the Default Price-Quality Paths from 1 April 2015: Process and issues paper" 30 April 2014, paragraph 133.

20 The same process applies equally to SAIFI.

21 IEEE Power Engineering Society "IEEE Std 1366:2003: IEEE Guide for Electric Power Distribution Reliability Indices" 2004, paragraph B5.1.

3.35 The 2.5 parameter, which is referred to as the *k*-value, in the boundary formula above is specified in IEEE 1366.[22] This is derived from the IEEE working group back-solving to achieve a statistical expectation of 2.3 days per year being classified as a major event day.

3.36 Our boundary values are derived from a non-zero dataset consistent with the IEEE standard. However, the IEEE standard for a *k*-value of 2.5 is based on an implicit assumption that interruptions occur every day. That assumption does not hold true for all New Zealand distributors. Consequently, our normalisation method is less effective for distributors that have a greater number of zero event days.

3.37 In order to provide a more suitable definition of a major event day we have customised the *k*-value for each distributor. This is based on back-solving as to expect that a distributor will have 2.3 interruption days per year that are major event days. Dividing 2.3 by the number of interruption days in a year gives us a modified p-value, being the probability of an interruption day being a major event day. We then infer the number of standard deviations that gives us this probability using an inverse normal distribution function.

3.38 Figure 3.2, on the left, using SAIDI as an example, confirms Wellington Electricity's and ENA's view that our current normalisation methodology is less effective for distributors with many zero event days.[23]

3.39 The result is that distributors with relative few interruption days have high boundary values which are therefore rarely exceeded. The right graph in Figure 3.2 illustrates that our proposed methodology has a much more random distribution and appears to bear no relationship between frequency of interruptions and number of time the boundary is exceeded.

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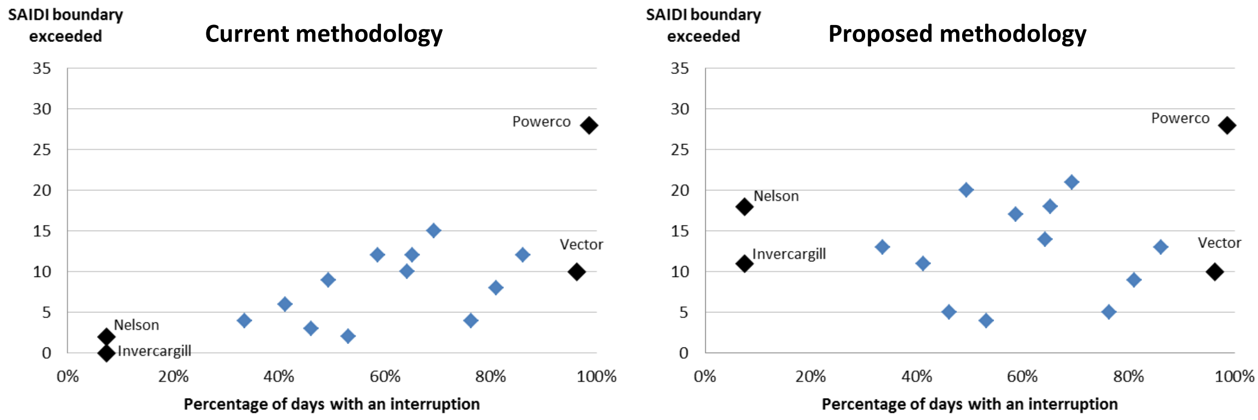
22 IEEE Power Engineering Society "IEEE Std 1366:2003: IEEE Guide for Electric Power Distribution Reliability Indices" 2004, paragraph B5.1.

23 Wellington Electricity Lines Limited "Submission on issues paper on 2015-2020 Default Price-quality Path" 30 April 2014, p. 14; Electricity Networks Association "Submission on default price-quality paths from 1 April 2015 for 17 electricity distributors: process and issues paper" 30 April 2014, paragraph 76a.

Figure 3.2: Number of times the daily SAIDI boundary was exceeded between 2005 and 2014 by distributor, based on current and proposed normalisation methodologies



3.40 Table 3.1 shows the average number of interruption days per year for each electricity distributor subject to the quality incentive scheme, and the associated *k*-value.

Table 3.1: Interruption days and *k*-value by electricity distributor

Distributor	Days per year with unplanned interruptions	Probability of major event day (P-value)	*k*-value
Alpine Energy	91	0.025	1.96
Aurora Energy	213	0.011	2.30
Centralines	89	0.026	1.95
Eastland Network	147	0.016	2.15
Electricity Ashburton	141	0.016	2.14
Electricity Invercargill	21	0.111	1.22
Horizon Energy	79	0.029	1.90
Nelson Electricity	7	0.338	0.42
Network Tasman	100	0.023	1.99
OtagoNet	123	0.019	2.08
Powerco	349	0.007	2.48
The Lines Company	268	0.009	2.38
Top Energy	171	0.013	2.21
Unison Networks	201	0.011	2.27
Vector Lines	326	0.007	2.45
Wellington Electricity	137	0.017	2.12
All Days	365	0.006	2.49

3.41 This *k*-value is then used to replace 2.5 in the boundary formula in paragraph 3.33.1.

3.42 The effect will be most noticeable for smaller underground networks that typically have few interruptions, such as Electricity Invercargill and Nelson Electricity. The result is that boundary values will be lower, and more in line with the expectation of 2.3 major event days per year.

3.43 The ENA Working Group and some submitters suggested that a more simplistic approach to defining boundary values was appropriate, such as a multiple of the daily average SAIDI or SAIFI value.[24] However, we consider that it is unlikely that one multiple would be appropriate for all distributors, given the variability of interruptions on each network.

Major events that span multiple days will not be normalised as one event

3.44 Submitters suggested that we consider extending the 24 hour normalisation test period to capture the full impact of extreme events.[25] They argue that maximum event days that span multiple days and cause multiple individual outages should be treated as a single event.

3.45 Although normalising multiday event into one major event may be desirable, there are problematic data issues for applying this consistently across distributors, such as:

3.45.1 setting targets based on the available historical data that we have;

3.45.2 interpreting the start and end dates of a major event and which interruptions apply to that event; and

3.45.3 verifying that the same major event is applicable to multiple days.

Deriving the boundary values for SAIDI and SAIFI

3.46 This section outlines the steps that we have taken to derive the boundary values for each distributor, consistent with the above proposals. For illustrative purposes SAIFI is used to demonstrate but is also applicable to SAIDI.

Individual SAIDI and SAIFI

3.47 Using individual interruption data provided by distributors for the reference period, we have calculated SAIDI and SAIFI.

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24 Refer to: Electricity Networks Association "Pathway to Quality: Quality of Service Incentives Working Group Report" February 2014, page 46; Eastland Network "Submission to Commerce Commission: Default Price-Quality Paths from 1 April 2015 for 17 electricity distributors - Process and Issues Paper" 30 April 2014, page 11; Powerco "Submission on Default price-quality paths from 1 April 2015 for 17 electricity distributors: Process and Issues paper" 30 April 2014, paragraph 67; PwC "Submission to the Commerce Commission on Default price-quality paths from 1 April 2015 for 17 electricity distributors: Process and issues paper - Made on behalf of 20 Electricity Distribution Businesses" 30 April 2014, paragraph 65.

25 Electricity Networks Association "Pathway to Quality: Quality of Service Incentives Working Group Report" February 2014, page 47; PwC "Submission to the Commerce Commission on Default price-quality paths from 1 April 2015 for 17 electricity distributors: Process and issues paper - Made on behalf of 20 Electricity Distribution Businesses" 30 April 2014, paragraph 64; Wellington Electricity Lines Limited "Submission on issues paper on 2015-2020 Default Price-quality Path" 30 April 2014, p. 14.

Daily SAIDI and SAIFI

3.48 Unplanned interruptions for each day are aggregated together for the purposes of calculating boundary values.

3.49 Planned interruptions for each day are aggregated together and weighted down by 50%.

Boundary SAIDI and SAIFI

3.50 The boundary value is calculated using the formula:

3.50.1 $B_{SAIFI} = \exp(\alpha_{SAIFI} + k \cdot \beta_{SAIFI})$, where:

3.50.1.1 α is the mean of the natural logarithm of daily unplanned SAIFI in the non-zero dataset;

3.50.1.2 β is the standard deviation of the natural logarithm of daily unplanned SAIFI in the non-zero dataset; and

3.50.1.3 *k* is the *k*-value as defined in Table 3.1.

3.51 Table 3.2 shows the boundary values for unplanned SAIDI and unplanned SAIFI for each distributor subject to upcoming default price-quality reset.

Table 3.2: Boundary values by electricity distributor

Distributor	SAIDI Boundary	SAIFI Boundary
Alpine Energy	14.03	0.130
Aurora Energy	10.92	0.262
Centralines	9.67	0.477
Eastland Network	17.13	0.215
Electricity Ashburton	8.98	0.110
Electricity Invercargill	4.18	0.123
Horizon Energy	17.85	0.248
Nelson Electricity	2.12	0.042
Network Tasman	19.02	0.163
OtagoNet	13.43	0.160
Powerco	11.31	0.131
The Lines Company	15.84	0.257
Top Energy	39.56	0.644
Unison Networks	10.95	0.192
Vector Lines	9.88	0.140
Wellington Electricity	6.85	0.112

4. Reliability targets

Purpose of chapter

4.1 This chapter explains the methodology we used to determine the reliability targets that apply to each distributor under the proposed revenue-linked quality incentive scheme.

4.2 The target in the quality incentive scheme represents the quality standard and is the point at which there will be no financial penalty or reward.

Overview of the proposed methodology

4.3 The SAIDI and SAIFI annual targets are calculated independently.

4.4 A reliability target is the adjusted average of the annual normalised SAIDI and SAIFI over the reference period— from 1 April 2004 to 31 March 2014. Adjustments are made to annual SAIDI and SAIFI assessed values where a distributor has breached their current quality requirements.

4.5 Planned interruptions are given a lower weighting than unplanned interruptions.

4.6 The rest of this attachment outlines in more detail:

4.6.1 the reasons for the decisions we have made;

4.6.2 the alternative options that we considered; and

4.6.3 the calculation of the SAIDI and SAIFI target for each distributor.

Targets are applicable to SAIDI and SAIFI

4.7 New SAIDI and SAIFI targets have been set for the revenue-linked quality incentive scheme. Both SAIDI and SAIFI are important measures of network reliability.

4.8 We also considered whether a SAIDI target on its own would be sufficient, given that SAIDI implicitly incorporates both the frequency and duration of interruptions. However, SAIDI does not effectively capture short frequent interruptions which can be almost as inconvenient for customers.

4.9 Submissions have supported the use both SAIDI and SAIFI for the quality of service incentive scheme.

4.10 There is potential for further quality measures to be introduced at a later stage, such as customer service measures; however insufficient data and consistency across distributors is available at this stage.

Targets are calculated as the average of the reference period

4.11 The targets are calculated as the adjusted 10-year average of normalised SAIDI and SAIFI, where, as discussed in Chapter 3:

4.11.1 planned interruptions were given a 50% weighting;

4.11.2 boundary values apply to unplanned interruptions only; and

4.11.3 major event days, triggered by SAIFI, were replaced with the boundary values.

4.12 We consider that a reference period of 10-years best reflects the current underlying level of reliability performance, given the availability of reliable data. Submitters had different views as to what period should be used:

4.12.1 Vector prefers that the reference period remains as it currently stands—from 2004 to 2009, and suggests that any change from the current standard should be reflected in prices.[26] We note that Vector's reliability data indicates an improvement in reliability performance since 2009 relative to the five years before which should be reflected in the current quality regime;

4.12.2 Wellington Electricity submit that the targets should be based on the recent historical data, and suggests the five years between 2009 and 2014 as this best reflects the current quality performance.[27] We consider that given the often large variability in the reliability data across time for many distributors a ten year average is most representative of underlying performance. We note that from Wellington Electricity's reliability data, their network experienced more interruptions for this period relative to the five years before; and

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[26] Vector "Submission to Commerce Commission on the Default Price-Quality Paths from 1 April 2015: Process and issues paper" 30 April 2014, paragraphs 125-126.

[27] Wellington Electricity Lines Limited "Submission on issues paper on 2015-2020 Default Price-quality Path" 30 April 2014, page 13.

4.12.3 Powerco considers 10 years, from 2004 to 2014, a sufficient length of time to capture variability in reliability resulting from weather events.[28] Vector also considers this option appropriate and indicates it as a second preference.[29]

4.13 A target is the point at which there will be no reward or penalty applicable under the quality of service incentive scheme. The targets are calculated as the average of annual normalised SAIDI and SAIFI between 1 April 2004 and 31 March 2014, adjusted for quality breaches (see section below).

4.14 Powerco and Wellington Electricity state that the reliability targets should be based on the average of the last five years plus an uplift of one standard deviation.[30] We reject any uplift from an average as this would tend to result in a wealth transfer from consumers to distributors without a corresponding expected benefit to consumers.

4.15 Other submitters suggest the possibility of a dead-band around the reliability target, for example one standard deviation, to reflect natural variation.[31] We consider that this is unnecessary as:

4.15.1 assuming that a suitable reliability target and normalisation methodology is implemented, natural variation will not unduly penalise, reward, or create perverse incentives; and

4.15.2 we expect that natural variation will be symmetric and not biased, and variations will tend to be offsetting over the regulatory period.

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28 Powerco "Submission on Default price-quality paths from 1 April 2015 for 17 electricity distributors: Process and Issues paper" 30 April 2014, paragraph 62.

29 Vector "Submission to Commerce Commission on the Default Price-Quality Paths from 1 April 2015: Process and issues paper" 30 April 2014, paragraph 131.

30 Powerco "Submission on Default price-quality paths from 1 April 2015 for 17 electricity distributors: Process and Issues paper" 30 April 2014, paragraph 63; Wellington Electricity Lines Limited "Submission on issues paper on 2015-2020 Default Price-quality Path" 30 April 2014, page 13.

31 Eastland Network "Submission to Commerce Commission: Default Price-Quality Paths from 1 April 2015 for 17 electricity distributors - Process and Issues Paper" 30 April 2014, page 21; Horizon Energy Distribution Limited "Submission on the Default Price-Quality Paths from 1 April 2015 for 17 Electricity Distributors: Process and Issues Paper" 24 April 2014, paragraph 34; Unison Networks Limited "Submission on the Default Price-quality paths from 1 April 2015: Process and issues Paper" 30 April 2014, paragraph 74.

Adjustments are made for previous quality breaches

4.16 An adjustment for quality breaches has been applied for those distributors that breached their quality standard under the current default price-quality path. We consider that distributors should not receive a higher (less challenging) target due to past quality breaches.

4.17 This adjustment is made when calculating the target for the next regulatory period. We adjust for breaches by reducing the normalised annual value by the same proportion as any breach that exceeded the old limit.

4.18 Annual normalised SAIDI and SAIFI were reduced by the same proportion as the limits were exceeded for the years of breach, thus their target SAIDI and SAIFI are lower than their 10-year average. These distributors were:

4.18.1 Aurora Energy;

4.18.2 Eastland Network;

4.18.3 Electricity Invercargill; and

4.18.4 Wellington Electricity

Targets are fixed for the regulatory period

4.19 Submissions generally agree that fixed targets for the regulatory period provide certainty for distributors.[32] Also, distributors should be subject to the same reliability standard to ensure that any improvement or deterioration is properly captured within the incentive scheme.

4.20 Forward looking targets (whether fixed or moving toward a long run target) could be considered the ideal, but because of data limitations are impractical to implement for this reset.

[32] Electricity Networks Association “Pathway to Quality: Quality of Service Incentives Working Group Report” February 2014, page 52; Powerco “Submission on Default price-quality paths from 1 April 2015 for 17 electricity distributors: Process and Issues paper” 30 April 2014, paragraph 61; Vector “Submission to Commerce Commission on the Default Price-Quality Paths from 1 April 2015: Process and issues paper” 30 April 2014, paragraph 124.

4.21 Alternatively, we considered a rolling target which updates the reliability targets every year. We agree with Powerco that this creates unnecessary uncertainty and complication.[33]

Summary of the targets for SAIDI and SAIFI

4.22 Table 4.1 shows the targets for SAIDI and SAIFI for each distributor subject to upcoming default price-quality reset.

Table 4.1: Boundary values by electricity distributor

Distributor	SAIDI Target	SAIFI Target
Alpine Energy	147.6	1.37
Aurora Energy	86.8	1.37
Centralines	137.2	4.05
Eastland Network	246.6	3.15
Electricity Ashburton	139.6	1.41
Electricity Invercargill	29.2	0.65
Horizon Energy	170.6	2.04
Nelson Electricity	15.1	0.20
Network Tasman	126.0	1.34
OtagoNet	233.6	2.30
Powerco	222.3	2.17
The Lines Company	238.8	3.21
Top Energy	446.0	5.59
Unison Networks	111.4	2.05
Vector Lines	106.6	1.33
Wellington Electricity	37.1	0.53

33 Powerco "Submission on Default price-quality paths from 1 April 2015 for 17 electricity distributors: Process and Issues paper" 30 April 2014, paragraph 61

5. Revenue at risk

Purpose of chapter

5.1 This chapter explains our proposed approach to setting the revenue at risk for the revenue-linked quality incentive scheme.

Overview of the proposed methodology

5.2 Revenue at risk is proposed to be 1% of the starting price maximum allowable revenue for the regulatory period.

5.3 Revenue at risk will be allocated equally between SAIDI and SAIFI.

Percentage of revenue at risk to apply

5.4 We have proposed a cautious approach in setting the revenue at risk per year at 1% of the starting price maximum allowable revenue. We consider that 1% of starting price maximum allowable revenue is the minimum level of risk required as to create managerial incentives.

5.5 Higher rates of revenue at risk of up to 5% have been considered, similar to other overseas jurisdictions with a similar incentive in place.[34] We consider a cautious approach may be appropriate when setting a new quality regime. We note that this approach is consistent with our recent draft decision on Transpower's individual price-quality path.

5.6 Many submitters agreed that an initial low level of revenue at risk is a prudent starting point. For example:

5.6.1 Vector suggests that 1% revenue at risk is appropriate and still provides meaningful incentives;[35] and

5.6.2 Horizon suggested starting at 1% and rising to 2% revenue at risk over the regulatory period.[36]

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34 For example in the United Kingdom, Ofgem applied revenue at risk of 3% for electricity distributors under their revenue-linked quality incentive scheme.

35 Vector "Submission to Commerce Commission on the Default Price-Quality Paths from 1 April 2015: Process and issues paper" 30 April 2014, paragraphs 165 and 167.

36 Horizon Energy Distribution Limited "Submission on the Default Price-Quality Paths from 1 April 2015 for 17 Electricity Distributors: Process and Issues Paper" 24 April 2014, paragraph 36.

5.7 Unison submitted that a prudent approach was appropriate, but also needed to be balanced so that the revenue at risk and incentive rates are sufficiently material to be effective.[37]

5.8 As further information becomes available in future resets and as distributors adapt to the incentive scheme we expect to increase the revenue at risk.

Allocation of revenue at risk between SAIDI and SAIFI measures

5.9 Revenue at risk is proposed to be allocated evenly between SAIDI and SAIFI reliability incentive schemes, at 0.5% of starting price maximum allowable revenue each.

5.10 We recognise that there exists a degree of 'double counting' between SAIDI and SAIFI in that the duration of interruptions implicitly captures information on the frequency of interruptions.

5.11 This double counting may have an effect on incentives. An alternative approach that may be considered is altering the allocation of revenue at risk between SAIDI and SAIFI.

5.12 Horizon and PwC submitted that a 50/50 allocation of risk between SAIDI and SAIFI is an appropriate starting point. They indicate that there is scope to adjust this split once more information is available—for example, on which consumers value more.[38]

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[37] Unison Networks Limited "Submission on the Default Price-quality paths from 1 April 2015: Process and issues Paper" 30 April 2014, paragraph 72.

[38] PwC "Submission to the Commerce Commission on Default price-quality paths from 1 April 2015 for 17 electricity distributors: Process and issues paper - Made on behalf of 20 Electricity Distribution Businesses" 30 April 2014, paragraph 72; Horizon Energy Distribution Limited "Submission on the Default Price-Quality Paths from 1 April 2015 for 17 Electricity Distributors: Process and Issues Paper" 24 April 2014, paragraph 35.

Summary of the revenues at risk

5.13 Table 5.1 summarises the proposed starting price maximum allowable revenue for each distributor and the corresponding revenue at risk for SAIDI and SAIFI.

Table 5.1: Revenue at risk by electricity distributor

Distributor	Maximum allowable revenue 2016 ($m)	SAIDI revenue at risk ($m)	SAIFI revenue at risk ($m)
Alpine Energy	37,390	0.187	0.187
Aurora Energy	56,590	0.283	0.283
Centralines	11,301	0.057	0.057
Eastland Network	24,240	0.121	0.121
Electricity Ashburton	34,124	0.171	0.171
Electricity Invercargill	14,694	0.073	0.073
Horizon Energy	22,259	0.111	0.111
Nelson Electricity	6,903	0.035	0.035
Network Tasman	28,729	0.144	0.144
OtagoNet	23,742	0.119	0.119
Powerco	256,527	1.283	1.283
The Lines Company	35,816	0.179	0.179
Top Energy	40,011	0.200	0.200
Unison Networks	100,102	0.501	0.501
Vector Lines	396,831	1.984	1.984
Wellington Electricity	100,482	0.502	0.502

Note: the values in this table have been updated and differ from the quality targets model published on 4 July; an updated model will be published alongside this paper.

6. Caps and collars and incentive rates

Purpose of chapter

6.1 This chapter explains the methodology we used to determine the reliability caps, collars and incentive rates under the proposed revenue-linked quality incentive scheme. We refer to the cap as the maximum SAIDI or SAIFI values at which point no further marginal rewards apply. Conversely, the collar is the minimum SAIDI or SAIFI values at which point no further rewards apply.

Overview of the proposed methodology

6.2 The key features of our proposed methodology to calculating caps, collars and incentive rates includes:

6.2.1 the caps and collars are symmetric;

6.2.2 the caps are one standard deviation above the targets and collars are one standard deviation below the target; and

6.2.3 the incentive rates are calculated based on a given revenue at risk and caps and collars.

6.3 The rest of this attachment outlines in more detail:

6.3.1 the reasons for the decisions we have made;

6.3.2 the alternative options that we considered; and

6.3.3 the calculation of the SAIDI and SAIFI caps and collars for each distributor.

Symmetric caps and collars

6.4 We consider that a symmetric cap and collar, and therefore incentive rate, are appropriate as there is no evidence to suggest that consumers value reliability differently for under-performance and over-performance.

One standard deviation from the target

6.5 A range of reliability performance equal to one standard deviation above and below the target provides appropriate coverage over which a distributor's reliability performance faces a positive marginal incentive.

6.6 Setting too narrow a range between the cap and collars could result in a distributor's performance bouncing between the maximum revenue reward and penalty. This would not be effective in creating the marginal incentives on reliability we seek to create.

6.7 Conversely, if the cap and collar is too wide, the resulting incentive rate may be unnecessarily low and risk not producing the desired quality incentives.

Caps and collars are set exogenously

6.8 Our decision to determine caps and collars exogenously, rather than the incentive rate, was for practical reasons. Given our decision on revenue at risk, we considered a cap and collar range equal to one standard deviation about target was the minimum spread to ensure that distributor's performance faced desirable marginal incentives.

6.9 We consider that in principle, the incentive rate should reflect consumers' willingness to pay for changes in service reliability, as suggested by Vector.[39] However, given that revenue at risk is set at 1%, applying an incentive rate comparable to a type of value of lost load measure would result in a very narrow band between cap and collar for many distributors.

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39 Vector "Submission to Commerce Commission on the Default Price-Quality Paths from 1 April 2015: Process and issues paper" 30 April 2014, paragraph 163.

Summary of the caps and collars

6.10 Table 6.1 summarises the caps and collars for SAIDI and SAIFI for each distributor, based on one standard deviation about the target.

Table 6.1: Caps and collars for electricity distributors

Distributor	SAIDI Collar	SAIDI Cap	SAIFI Collar	SAIFI Cap
Alpine Energy	78.8	216.4	1.37	1.09
Aurora Energy	61.4	112.2	1.37	1.14
Centralines	100.9	173.4	4.05	2.72
Eastland Network	206.0	287.2	3.15	2.82
Electricity Ashburton	109.3	169.8	1.41	1.11
Electricity Invercargill	17.5	40.8	0.65	0.41
Horizon Energy	124.5	216.7	2.04	1.76
Nelson Electricity	5.6	24.7	0.20	0.11
Network Tasman	102.5	149.5	1.34	1.17
OtagoNet	171.5	295.7	2.30	1.87
Powerco	166.2	278.4	2.17	1.69
The Lines Company	201.3	276.3	3.21	2.47
Top Energy	364.2	527.7	5.59	3.97
Unison Networks	87.5	135.3	2.05	1.50
Vector Lines	81.5	131.8	1.33	0.99
Wellington Electricity	24.9	49.3	0.53	0.37

Other options we considered for setting incentive rates

6.11 We considered setting the incentives rate and caps and collars, these considerations included:

6.11.1 whether the incentive rates should be equal across distributors;

6.11.2 how to base incentive rates on the value consumer's place on quality; and

6.11.3 whether the 'value of lost load' is appropriate to derive incentive rates.

6.12 Given that we opted to fix revenue at risk at 1% and set caps and collars at one standard deviation from the target, the incentive rate is solved endogenously using these two parameters.

Summary of the incentive rates for SAIDI and SAIFI

6.13 Table 6.2 summarises the incentive rates for SAIDI and SAIFI for each distributor. Also shown is the implied cost per hour of interruptions related to SAIDI and the cost per interruption related to SAIFI.

Table 6.2: Implied incentive rates by electricity distributor

Distributor	SAIDI incentive rate ($/SAIDI)	Implied cost per SAIDI hour ($)	SAIFI incentive rate ($/SAIFI)	Implied SAIFI cost for each interruption ($)
Alpine Energy	1,358	2.61	332,855	10.66
Aurora Energy	5,570	4.01	628,432	7.54
Centralines	779	5.62	21,247	2.55
Eastland Network	1,494	3.51	185,656	7.26
Electricity Ashburton	2,817	9.54	282,651	15.94
Electricity Invercargill	3,155	10.97	151,819	8.80
Horizon Energy	1,207	2.93	202,071	8.17
Nelson Electricity	1,803	11.88	196,780	21.62
Network Tasman	3,058	4.92	410,022	10.99
OtagoNet	956	3.87	137,406	9.28
Powerco	11,427	2.13	1,341,529	4.16
The Lines Company	2,389	6.10	120,982	5.15
Top Energy	1,224	2.40	61,632	2.01
Unison Networks	10,480	5.75	450,792	4.12
Vector Lines	39,479	4.42	2,996,980	5.59
Wellington Electricity	20,601	7.50	1,565,230	9.50

Note: the values in this table have been updated and differ from the quality targets model published on 4 July; an updated model will be published alongside this paper.

7. How you can provide your views

Purpose of chapter

1. This chapter outlines the timeframes, address, and format for responses, as well as explaining how submissions can be made on a confidential basis.

Responding to this paper

2. You are invited to provide your views on any aspect of our draft amendment determination and reasons.

Timeframes for responses

3. We welcome your views in the timeframes set out below.

    3.1 Submissions are due by **Friday, 29 August 2014**.

    3.2 Cross-submissions are due by **Friday, 12 September 2014**.

4. A number of other consultation steps are being conducted in parallel as part of the reset of the default price-quality paths for electricity distributors.[40] As well as allowing parties to consider each aspect of the proposals simultaneously, we have allowed 6 weeks for submissions on each publication, and 2 weeks for cross-submissions.

5. We do not intend to take into account any material that is provided outside of the timeframes provided. Any party that is concerned about the time to engage with the material should contact us with a request for an extension outlining their specific concerns.

Address for responses

6. You should address responses to:

    John McLaren (Chief Adviser, Regulation Branch)
    c/o regulation.branch@comcom.govt.nz

Format for responses

7. We prefer responses in a file format suitable for word processing, rather than the PDF file format.

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40 Refer: Commerce Commission "Proposed default price-quality paths for electricity distributors from 1 April 2015" (4 July 2014), Chapter 9.

Requests for confidentiality

8. While we discourage requests for non-disclosure of submissions, we recognise that there may be cases where parties that make submissions wish to provide information in confidence.[41] We offer the following guidance.

    8.1 If it is necessary to include confidential material in a submission, the information should be clearly marked.

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

    8.3 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.

9. We request 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 and cross-submissions on our website. Where relevant, please provide both an 'unlocked' electronic copy of your submission, and a clearly labelled 'public version'.

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[41] Parties can also request that we make orders under s 100 of the Act in respect of information that should not be made public. Any request for a s 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 s 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 s 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.