



**Submission to Commerce Commission on  
the Default Price-Quality Paths from 1  
April 2015: Process and issues paper**

**30 April 2014**

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## **Executive Summary**

### *Introduction*

1. The 2015 reset is an opportunity to improve the DPP framework that was established in 2012 and the outcomes of DPP/ CPP regulation. We believe the forecasting techniques can be refined and new incentive mechanisms can be introduced so regulated suppliers are able to deliver benefits to consumers.

### *Forecasting risk*

2. Vector considers that regulated suppliers should be subject to risk associated with items within their control or influence, but forecast risks should not be allocated to regulated suppliers for items that they cannot control. In this context we discuss forecasts of revenue growth, of inflation for revaluation purposes and of pass-through and recoverable costs.

### Revenue growth

3. In general, EDBs have very limited ability to influence the amount of electricity used by their consumers. However, we do have some ability to restructure our prices to mitigate the risk that volume growth rates differ from the Commission's forecasts.
4. Vector does not think that allocating the risk associated with the Commission's volume growth forecasts within a regulatory period entirely to EDBs **or** entirely to consumers is appropriate. In our view, EDBs should be subject to the risk (and able to mitigate it to some extent) unless the forecasts are inaccurate by a very substantial amount.
5. The best approach for this reset may be for the Commission to strive to ensure that its volume growth forecasts are as accurate as possible and based on independent and robust sources (we suggest options for improving the DPP revenue growth forecasts below). Also, where there is uncertainty in the revenue forecasts, we submit the Commission should lean towards the lower end of the range of plausible revenue growth forecasts.

### Inflation for revaluation purposes

6. Inflation is outside the control or influence of EDBs. In our view there is no reason for EDBs to be exposed to the forecast inflation risk that is associated with revaluations as they cannot take steps to mitigate it.

7. RAB indexation is carried out in accordance with the information disclosure IMs using actual inflation rates. Within the DPP, a revaluation rate using forecast inflation is embedded in the setting of starting prices, with an offsetting adjustment in the value of the regulated asset base at the end of the regulatory period. This ensures Financial Capital Maintenance (FCM) can be achieved. Where actual inflation is lower (or higher) than the forecasts used when setting the starting price for the regulatory period, the revenue adjustment embedded in starting prices (and therefore reflected in each subsequent year's actual revenues) will not be equivalent to the revenue uplift based on the indexed RAB in future regulatory periods. This means that FCM will not be achieved.
8. Vector supports the return of the revenue effects of this issue to EDBs over the next regulatory period and, for future regulatory periods, the DPP be adjusted to ensure this risk does not apply and FCM can be achieved. The attached PWC report puts forward a wash-up mechanism that would achieve this outcome. We also note, subject to other wash-up adjustments proposed in this submission, that RAB revaluations could conceptually be removed from the determination of MAR and be treated as a (negative) pass-through cost and thus also preserve FCM.

#### Pass-through and recoverable costs

9. Pass-through and recoverable costs are outside the control of EDBs. No valuable incentives are created by EDBs being subject to cost recovery risk in relation to these costs as EDBs are unable to manage them in response to DPP incentives. As a result, in principle it is appropriate that EDBs are able to recoup the exact amount of these costs. In this submission, Vector puts forward a proposed mechanism to address this issue.

#### *Risk associated with catastrophic events*

10. Vector agrees with the Commission that a reopener and a CPP are both mechanisms to help ensure distributors earn a normal rate of return. However, Vector does not agree with, or understand, the Commission's position stated in paragraph 6.21 that claw-back should not (or cannot) be applied for DPP reopeners.
11. The High Court found that an automatic reopening of the DPP following a catastrophic or change event was *materially better* than relying on a CPP to address such events, and opined that the Commission must consider reopening the DPP if a trigger event occurs. In Vector's view, the Commission's statement in the Issues Paper is inconsistent with the High

Court judgment and could lead to perverse outcomes. We encourage the Commission to reconsider its position.

#### *Forecasting revenue growth*

12. Vector **recommends** the following changes are made to the Commission's revenue forecasting approach:
  - a) The Commission should not assume that usage per ICP remains constant; and
  - b) The Commission should not assume a 1:1 relationship between population growth and ICP growth.

#### *Forecasting opex*

13. In principle, Vector supports the use of the most recent data available. This should be most reflective of current costs of each EDB and, where there are significant variations from previous years it should be possible to explain those. However, Vector appreciates the Commission's view around 2014 expenditures. Therefore, Vector could accept an average of 2013 and 2014 disclosed opex (adjusted to constant prices) for each EDB as the initial level of operating expenditure.
14. Vector does not have a firm view at this stage of which opex econometrics model is "best". However, we **recommend** the Commission consider the reports of Frontier Economics (for the ENA) and Network Strategies (for Vector – attached) when developing its approach to measuring the impact of changes in network scale on network and non-network opex.

#### *Forecasting capex*

15. Vector supports the Commission's efforts to investigate potential models for capex categories. However, given the untested and experimental nature of these models the best option for forecasting capex for the next regulatory period is to use distributor capex forecasts, subject to a cap based on historical average expenditure.
16. We consider that econometric (and any other available) models for capex are best utilised in a "shadow" form for this reset – i.e. the Commission could usefully identify what each EDB's capex allowance would be using an econometric approach and compare this forecast to actuals at the time of the next reset.

### *Quality incentives*

17. Vector considers the upcoming reset is an opportunity to review and improve the current quality regime and develop it to ensure it delivers the outcomes consumers want.
18. The current pass/fail regime is undesirable in the way in which it places EDBs at risk of civil and criminal penalties for variations in quality of supply, which are largely outside their control. It may also have undesirable incentive effects.
19. Ideally, Vector considers that a revenue-linked scheme would be introduced where it is clear that they will provide incentives that align with consumer preferences. In the absence of such information, a sensible approach for this reset would be to tread cautiously in terms of the level of revenue at risk and the incentive rate.
20. Vector also considers that the reliability target for the next regulatory period should not be changed from the reliability target in the current regulatory period without corresponding adjustments in prices. For example, if the Commission were to set a reliability target that is lower than exists in the current regulatory period, that would require the EDB to invest to deliver a higher quality of service to its customers after 1 April 2015 than they had previously been required to. It is not reasonable to require the EDB to deliver this higher quality of service without compensating them for it through increased revenues (this is at the core of the price-quality trade-off).

### *Energy efficiency incentives*

21. Vector supports the work undertaken by the ENA Energy Efficiency Incentives Working Group and the recommendations put forward in its report. In particular, we believe that two of the recommendations (without prejudice to the Group's other recommendations) could be implemented in the upcoming reset. These are a "D-Factor" regime, and recognising assets with shorter asset lives. We enclose proposals for addressing these recommendations, including a report by Castalia on the D-Factor.

## Introduction

22. Vector welcomes the opportunity to submit on the Commerce Commission's (Commission) consultation paper titled, "*Default price-quality path reset from 1 April 2015 for 17 electricity distributors*", dated 21 March 2014 (the Issues Paper).
23. Vector's contact person for this submission is:  
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24. The 2015 reset is an opportunity to improve the DPP framework that was established in 2012 and the outcomes of DPP/CPP regulation. We believe the forecasting techniques can be refined and new incentive mechanisms can be introduced so regulated suppliers are able deliver benefits to consumers.
25. We look forward to providing further feedback in this ongoing process for resetting the DPP.

## *Consultancy Reports*

26. Supporting our submission and proposals for the next DPP reset are the following expert reports:
- *Forecasting key inputs to the DPP reset decision for electricity distribution businesses*, Network Strategies (10 April 2014)
  - *A wash-up mechanism for the DPP revaluation rate*, PWC (April 2014).
  - *Providing a D-Factor mechanism under the DPP framework*, Castalia (April 2014)

## Forecasting Risk

### General comments

27. Regulated suppliers face a wide range of business risks; many of which are not related to regulatory decisions and which the suppliers are well placed to manage as part of their normal business operations.
28. The regulatory framework allocates risks between consumers and suppliers. Elsewhere in this submission we discuss methods of improving the forecasting approaches used in the DPP reset. However, on the basis that whatever forecasts are developed will inevitably be inaccurate to some degree, this section discusses how the risk of forecast error should be allocated.
29. Vector considers that regulated suppliers should be subject to risk associated with items within their control or influence. The table below summarises our views on the extent to which certain items, and mitigations against the risk of forecast error for each item, are within EDBs' control or influence.

Table 1. Summary of risks faced by distributors under the DPP<sup>1</sup>

Risk that forecast varies from actuals of:	Do EDBs have the ability to influence actuals?	What mitigation options are available?	Can EDBs implement the mitigations themselves?	Should EDBs be exposed to the risk?
Capex and opex	Yes	Adjust expenditure plans	Yes	Yes
Disposals and other regulated income	Yes	Adjust asset management practices (disposals) or contracts (other regulated income)	Yes	Yes
Revenue	Mostly no	Increasing fixed charges  Wash-up	Yes, subject to Low User Fixed Charge Regulations.  No	Yes, within a range around the forecast

<sup>1</sup> For clarity, all items discussed in this section other than inflation for revaluation purposes are discussed in constant price terms.



		Revenue cap	No	
CPI (for revaluations)	No	Wash-up	No	No
Pass-through and recoverable costs	No	"Ascertainable" approach Wash-up	No No	No

### *Capex and opex*

30. Capex and opex are clearly within suppliers' control so any risk that the forecasts may not reflect actual expenditure should rest with the supplier – this places incentives and responsibilities where they should lie.

### *Disposals and other regulated income*

31. Other regulated income and asset disposals are also within suppliers' control or influence and suppliers should face forecast risk associated with these items.

### *Revenue growth*

32. Revenue growth is a less clear-cut example. In general, EDBs have very limited ability to influence the amount of electricity used by their consumers. However, we do have some ability to restructure our prices to mitigate the risk that volume growth rates differ from the Commission's forecasts. This price restructuring ability also enables EDBs to manage their business risk of variations in demand.
33. The Commission's forecast of revenue growth for each EDB plays an important role in determining the starting price (all else being equal, a higher forecast revenue growth rate will lead to a lower starting price for the same cost forecasts). Thus, if the Commission over-forecasts revenue growth suppliers will not be able to earn sufficient revenues to match the Commission's forecasts of their costs.
34. Vector does not think that allocating the risk associated with the Commission's volume growth forecasts within a regulatory period entirely to

EDBs **or** entirely to consumers is appropriate. In our view, EDBs should be subject to the risk (and able to mitigate it to some extent) unless the forecasts are inaccurate by a very substantial amount.

35. One option is for a “cap and collar” approach whereby forecasts that are proven to be substantially different from forecast (i.e. above a cap or below a collar) are subject to a wash-up. However, this could be difficult to design in practice; for example if revenues are much higher than expected due to a substantial population increase then costs will most likely also be higher to cater for the new connection expenditure.
36. As a result, the best approach for this reset may be for the Commission to strive to ensure that its volume growth forecasts are as accurate as possible and based on independent and robust sources (we suggest options for improving the DPP revenue growth forecasts below). Also, where there is uncertainty in the revenue forecasts, we submit the Commission should lean towards the lower end of the range of plausible revenue growth forecasts. While CPPs may be appropriate for step-changes in expenditure it would not be desirable for EDBs to need to make CPP applications primarily to adjust the demand forecast they are subject to.
37. EDBs’ ability to mitigate and manage volume growth risk (and the associated volume forecasting risk) is to ensure variable prices reflect marginal costs. Vector is currently prevented from adopting such an approach by the Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004 which require a disproportionately high variable price for low use residential consumers. While these regulations sit outside the Commission’s area of responsibility, Vector would welcome the Commission’s assistance with seeking changes to these regulations.

#### *Inflation for asset base revaluation purposes*

38. Inflation is outside the control or influence of EDBs. In our view there is no reason for EDBs to be exposed to this risk as they cannot take steps to mitigate it.
39. The Commission’s inflation forecast within the DPP model is used to forecast revaluations of the regulatory asset base (RAB) over the regulatory period. The underlying principle is that revenues are reduced by the amount of the revaluations in the current regulatory period, but this is offset by higher revenue streams in future regulatory periods based on a higher (indexed) RAB. This achieves financial capital maintenance (FCM). The Commission

has been very clear in its view that indexed and unindexed RAB roll forwards are equivalent in terms of NPV and thus both ensure FCM.<sup>2</sup>

40. RAB indexation is carried out in accordance with the information disclosure IMs using actual inflation rates. Within the DPP, a revaluation rate using forecast inflation is embedded in the setting of starting prices, with an offsetting adjustment in the value of the regulated asset base at the end of the regulatory period. This ensures FCM can be achieved. Where actual inflation is lower (or higher) than the forecasts used when setting the starting price for the regulatory period, the revenue adjustment embedded in starting prices (and therefore reflected in each subsequent year's actual revenues) will not be equivalent to the revenue uplift based on the indexed RAB in future regulatory periods. This means that FCM will not be achieved.
41. The attached report by PWC identifies the magnitude of this issue. PWC confirm that in the current regulatory period the variation between forecast and actual inflation has been material. Had actual inflation been known at the time the price path was set, BBAR for Vector would have been \$30.5m higher in 2012, \$48.1m higher in 2013 and \$16.3m higher in 2014.<sup>3</sup> In other words, Vector has been adversely affected in the current regulatory period by nearly \$95m over just three years.
42. As shown in Tables 1-3 (pages 4-5) of the PWC report, this material effect applies to all EDBs and impacts on FCM of all non-exempt EDBs. Given its materiality, this issue clearly needs to be addressed. Vector **recommends** the necessary adjustments are factored into revenues over the next regulatory period (e.g. by allowing recovery of 1/5 of the total foregone revenues in each year of the next regulatory period, adjusted for the time value of money).
43. We note that for this regulatory period the DPP forecasts of inflation were too high. If they were too low for future regulatory periods, consumers would be paying higher prices than necessary.
44. Thus, for future regulatory periods Vector **recommends** the DPP be adjusted to ensure this risk does not apply and FCM can be achieved. The attached PWC report puts forward a wash-up mechanism that would achieve this outcome. We also note, subject to the pass-through and recoverable cost wash-up adjustments proposed below, that FCM could also be preserved by removing revaluations from the determination of MAR and treating them as a

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<sup>2</sup> For example, see the Commission's paper *Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper*, December 2010, paragraph 2.8.14.

<sup>3</sup> A wash-up mechanism for DPP revaluation rate, PWC (April 2014), Table 3.

(negative) pass-through cost within the price path. Use of a wash-up mechanism may be required to address the timing issues that will arise because the actual revaluation rate will not be known at the time of setting prices.

#### *Pass-through and recoverable costs*

45. Vector strongly supports the Commission's expectation that distributors fully recover pass-through and recoverable costs;<sup>4</sup> it is our aim to fully (but no more than fully) recover these costs. We note that the current operation of the DPP price path does not deliver this outcome.
46. Pass-through and recoverable costs are outside the control of EDBs. No valuable incentives are created by EDBs being subject to cost recovery risk in relation to these costs as EDBs are unable to manage them in response to DPP incentives. As a result, in principle it is appropriate that EDBs are able to recoup the exact amount of these costs.
47. DPP price paths currently introduce two risks for EDBs on the recovery of recoverable and pass through costs:
  - a) EDBs are required to forecast the values of pass-through and recoverable costs and, where the forecasts are incorrect, will under- or over-recover.
  - b) The application of the lagged quantities in the DPP compliance formula lead to the potential for under- or over-recovery. This is because the actual recovery of pass-through and recoverable costs reflects a different set of quantities to the lagged quantities used in the compliance test, which allows for greater than intended price increases when volumes are increasing (and vice versa).
48. In order to address the forecasting issue (a), Vector recommends the Commission implement the approach used under the gas distribution DPP – i.e. only permitting recovery of pass-through and recoverable costs that are "ascertainable" at the time prices are set; with a time value of money adjustment for costs that are recovered in later years. This will mitigate the forecast risk associated with pass-through and recoverable costs.
49. Our experience with the ascertainable approach under the gas DPP is that it is workable, and we consider that a similar approach to the electricity DPP would help reduce (but not eliminate) the risk associated with pass-through and recoverable costs experienced by EDBs.

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<sup>4</sup> See paragraph 6.7 of the Issues Paper.

50. However, the Electricity Authority is currently reviewing the Transmission Pricing Methodology (TPM) and it is possible that amendments to the TPM could affect the timing of Transpower's notification of its charges. Due to the significant sums involved, if EDBs were not notified of transmission charges on the current timeframes they would not be able to recover these costs in the first year of an "ascertainable" approach. This would result in serious cash-flow issues for all non-exempt EDBs, who would not be able to recover sufficient funds to cover their costs in that year. Any implementation of the "ascertainable" approach should include a mechanism to change that approach part-way through a regulatory period if the TPM review leads to a change in the dates on which Transpower announces its charges for the following year.
51. In order to address the lagged quantity issue (b), Vector recommends the Commission determine a separate path for pass-through and recoverable costs that acts more like a revenue cap by:
- Removing the  $K$  and  $V$  terms from the distribution price path equation and in the definition of prices; thus reporting of compliance with the distribution price path will be independent of recovery of pass-through and recoverable costs;
  - Set an additional pass-through and recoverable cost revenue cap that requires each non-exempt EDB to report in their annual compliance statements their actual pass-through and recoverable costs and the actual revenue they received in respect of those costs;
  - Any difference between the pass-through and recoverable costs and the associated recovery could be added or subtracted from the pass-through and recoverable costs allowance in the subsequent year, adjusted for the time value of money.
52. This methodology would mitigate both of the risks identified above and ensure EDBs only recover the funds they need to meet their pass-through and recoverable costs.

### **Risk associated with catastrophic events**

#### *Ability to reopen the price path or customised price-quality path*

53. Vector does not agree with, or understand, the Commission's position stated in paragraph 6.21 of the Issues Paper (emphasis added):

“We envisage that **catastrophic events may be more effectively dealt with through a customised price-quality path**, rather than through reopening the default price-quality path... **we do not consider that claw-back is available when a default price-path is reopened.**”

54. In the High Court merits appeal judgment, the Court found that an automatic reopening of the DPP following a catastrophic or change event *materially better* than relying on a CPP to address such events,<sup>5</sup> and opined that the Commission must consider reopening the DPP if a trigger event occurs – whether it chooses to or not is its discretion. In Vector’s view, the Commission’s statement above is inconsistent with the High Court judgment. We encourage the Commission to reconsider its position.
55. We do not agree that the Commission is prohibited from applying claw-back under a DPP or CPP reopener. We also note the question of whether claw-back can be applied under a DPP reopener was not raised by the Commission during the merits review, and thus not considered by the Court. Vector is also concerned that the Commission’s comment indicates a degree of pre-determination – i.e. it has already decided that a CPP is better for dealing with certain events and this may affect its judgement regarding reopeners when trigger events occur, despite the High Court’s ruling.
56. Further, “claw back” is defined in section 52D of the Commerce Act with reference to allowance for compensation for any over- or under-recovery that may have occurred. There is nothing in the Act that prevents the Commission from applying claw-back in situations where a DPP is reopened; to interpret the legislation in this way would create perverse outcomes.
57. For instance under the Commission’s interpretation, claw-back would only be possible if a supplier chooses to apply for a CPP and the Commission approves the application. However, a decision to apply for a CPP is the distributor’s decision, whereas a reopener is triggered by a particular event (set out under the amended IMs) and initiated by either the Commission or distributor.
58. Applying the Commission’s logic (as quoted above), it can only apply claw-back if a supplier successfully applies for a CPP, but not if a DPP reopener is triggered. This would be contrary to consumers’ interest because, if a reopener was triggered for a different reason (e.g. due to an input error that benefited regulated suppliers) and a DPP reopened, under the Commission’s approach it cannot provide consumers with claw-back of costs unless the

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<sup>5</sup> See paragraph [1909] of the merits appeal judgment, *Wellington International Airport LTD & ORS v Commerce Commission* [2013] NZHC, 11 December 2013.

distributor applied for a CPP. This seems unlikely to have been the intention behind the claw-back provisions of the Act.

59. Further, the time and cost involved in applying for a CPP that will need to cover all activities of the EDB may not be necessary (or cost effective) where an event has affected, for example, only parts of an EDB's network.
60. In light of the above, Vector **recommends** the Commission reconsider its position regarding claw-back and reopeners.

#### *Relationship between WACC and catastrophic risk*

61. In paragraphs 6.23 and 6.24 the Commission argues that "the practical effect of using an uplift to the mid-point estimate of the cost of capital is to provide a buffer for catastrophic events". The Commission then notes the current review of the 75<sup>th</sup> percentile estimate of the cost of capital. The Commission advises that "any consideration of the cost of capital will likely consider the potential role of an uplift in providing a buffer for catastrophic events."
62. It is important to recognise that the mid-point estimate of WACC is itself only an estimate and not the "true" WACC; as such the concept of a "buffer" is inaccurate. Similarly, the Commission describes the 75<sup>th</sup> percentile as the 75<sup>th</sup> percentile of the distribution of WACC, which is also incorrect. WACC is a fixed point – it does not have a probability distribution. The Commission's estimate is actually a judgement of the most appropriate estimate of the true WACC to balance the risk of outcomes from over- versus under-investing.
63. Vector maintains the view that the purpose of the 75<sup>th</sup> percentile estimate of WACC (or any similar adjustment) is to account for uncertainty in setting the WACC parameters. In our view, it is not appropriate to rely on the 75<sup>th</sup> percentile to account for other risks faced by regulated firms, such as catastrophic event risks.
64. This view has previously been accepted by the Commission. Refer, for example, to the discussion in Appendix H11 of the IM Reasons Paper in which the cost of capital range is discussed. This discussion focuses on "the statistical error surrounding individual parameter estimate" and each of the analytical approaches discussed identifies those parameters that have significant uncertainty associated with them. In relation to asymmetric risks, the Commission then went on to say (emphasis added):<sup>6</sup>

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<sup>6</sup> See Commission's *Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper*, December 2010, paragraphs H12.8 and H12.9.

A number of suppliers of regulated services submitted that an allowance for asymmetric risks should be included within the cost of capital. Some of these submitters considered that the Commission could make allowance by adopting a point estimate at the upper end of the estimated plausible range...

The Commission recognises that choosing a point estimate at the upper end of the range would be difficult to quantify and **would risk becoming conflated with the unrelated issue of recognising the potential asymmetries arising from estimation uncertainty**. In addition, whilst allowing an uplift to the cost of capital might provide firms with the necessary revenues to undertake self-insurance, without any form of 'ring fencing' arrangements in place, it is unlikely to provide consumers with any guarantee that the additional funds would be employed for that purpose. **The Commission's decision is therefore to not make any adjustments to the cost of capital for Type I asymmetric risk** [i.e. risks associated with infrequent events that could produce large losses, such as catastrophic events].

65. However, it appears the Commission has relied upon the existence of a 75<sup>th</sup> percentile estimate of WACC to avoid including allowances for other risks, such as catastrophic event risks, within the DPP. To the extent the Commission has done this, any change to the 75<sup>th</sup> percentile estimate should be accompanied by a corresponding change to the DPP determination to provide for the risk that the Commission is no longer claiming is covered by the 75<sup>th</sup> percentile. Absent such an adjustment, suppliers would not expect to earn a normal return on their investments.

### **Forecasting revenue growth**

66. The Commission proposes to retain its previous approach (used in the 2012 DPP reset process) for forecasting revenue growth. As identified by Network Strategies, there have been significant variations between forecasts and actuals for some EDBs.<sup>7</sup> This demonstrates there is scope for improving the forecasts of revenue growth used in the DPP model. Vector **recommends** the following changes are made:
- a) The Commission should not assume that usage per ICP remains constant; and
  - b) The Commission should not assume a 1:1 relationship between population growth and ICP growth.

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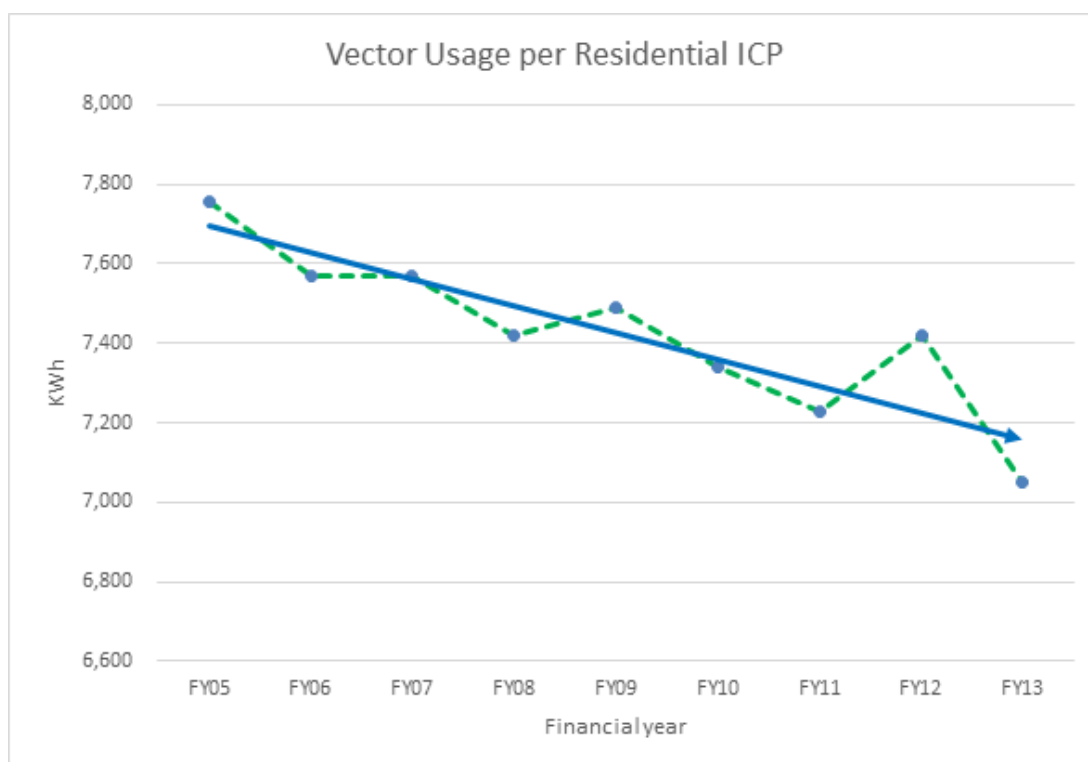
<sup>7</sup> See *Exhibit 2.5* of the Network Strategies report, *Forecasting key inputs to DPP reset decision for Vector's electricity distribution business* (10 April 2014), page 12.



67. These are discussed further below.

### Usage per ICP

68. The Commission's 2012 reset revenue growth model assumed a 0.0% rate of change in electricity usage per ICP. However, Vector has experienced a decline in usage per residential ICP since at least 2005, as shown in the graph below (with some years of increased usage due to unusually cold weather, as occurred in 2012). We believe the trend shown in this graph is important as it demonstrates the decline in usage per ICP is a trend that pre-dates (and seems largely unaffected by) the recession from 2008.



69. The graph above is based on internal Vector data. The table below shows changes in usage per ICP based on publicly available disclosure data.<sup>8</sup> We note that the trend based on internal Vector data is that usage per residential ICP is approximately -1% per annum – a steeper rate of decline than is found in the publicly available data.

<sup>8</sup> Notes on this table:

- the data starts from 2009 as that is the first year of disclosure data following the sale of the Wellington network;
- usage per ICP of all connections extends to 2014 based on Vector's 2014 new connections forecast disclosed in March 2014;
- usage per small ICP is not a reliable measure as Vector reformed its tariff structure over the period with the effect of moving some ICPs between the small and medium categories – hence we use here the “small + medium” connections to demonstrate the trend excluding large industrial customers.

Usage per ICP Vector's network	Average rate of change per annum
All connections 2009-2014	-0.78%
Small + medium connections 2009-2013	-0.64%

70. There is no information that would suggest this trend is reversing. This steady decline in demand has also been observed internationally, including the United States where there has been a steady decline in demand per customer since 1980, even as overall demand has increased.<sup>9</sup>
71. It is therefore not safe to assume that usage per ICP will remain flat over the forthcoming regulatory period. However, based on publicly available information disclosure data, we are aware that not all EDBs have experienced the same trend as Vector. Most EDBs (and most non-exempt EDBs) have experienced a decline in usage per ICP, but some have experienced an increase and others have no clear trend.
72. Vector **recommends** the Commission adjust each EDB's revenue growth forecast by their historic trend of usage per ICP since 2009 (as the year from which all current EDBs' disclosure data is available).<sup>10</sup>

#### *Population growth and ICP growth*

73. The Commission's 2012 model assumes that population growth rate can be used as a proxy for growth in residential ICP connections.<sup>11</sup> In Vector's experience, we have seen a trend of population growth increasing at a faster rate compared to ICP growth (i.e. the size of households is increasing).
74. The table below contrasts Commission and Statistics New Zealand population growth forecasts with actual (as disclosed) ICP growth on Vector's network. The table shows that small and medium ICP growth was lower than total ICP growth, and that both ICP growth rates were lower than forecasts.

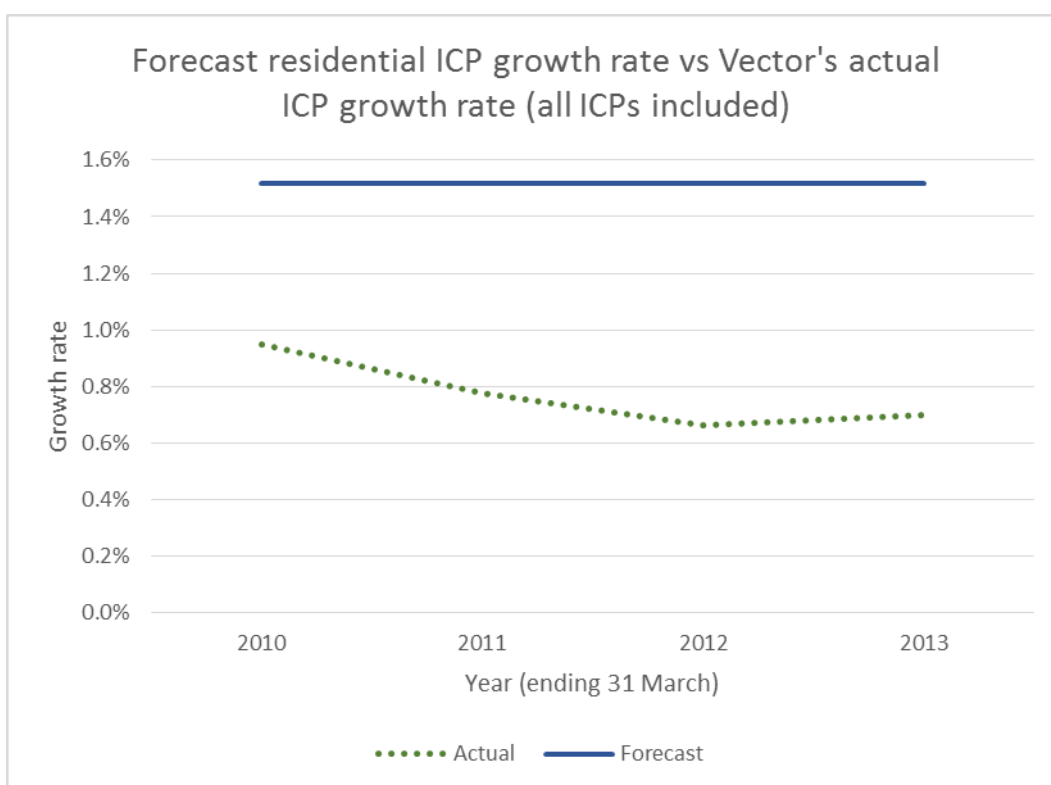
<sup>9</sup> For international examples, see: United States Energy Information Administration, *Annual Energy Outlook 2014*: [http://www.eia.gov/forecasts/aeo/er/pdf/0383er\(2014\).pdf](http://www.eia.gov/forecasts/aeo/er/pdf/0383er(2014).pdf), <http://www.eia.gov/consumption/residential/reports/2009/consumption-down.cfm>; European Environment Agency, *Final Energy Consumption Intensity (ENER 012) 2013* <http://www.eea.europa.eu/data-and-maps/indicators/final-energy-consumption-intensity-2/assessment>; Australian Energy Market Operator, *National Electricity Forecasting Report (NEFR) 2013*: <http://www.aemo.com.au/Electricity/Planning/Forecasting/National-Electricity-Forecasting-Report-2013>

<sup>10</sup> Given the lack of sufficient (and consistent) trend data across all non-exempt EDBs, Vector suggests using total ICP numbers for the reset.

<sup>11</sup> *Revised Draft Decision to Reset 2010-15 Default Price-Quality Paths 21 August 2012*, paragraphs F19-F21.

ICP and population growth in Auckland	Average annual growth rate
Vector average actual small and medium ICP growth (2011-2013)	0.55%
Vector average actual total ICP growth (2011-2013)	0.81%
Commission forecast for Vector (2011-2015)	1.52%
Auckland population growth (2006-2013) <sup>12</sup>	1.20%

75. Further, a comparison of the Commission’s forecast for residential ICP growth (which was essentially a population growth forecast) with Vector’s actual total ICP growth rate (for 2010 – 2013), shows that ICP growth has been consistently lower than population growth over time – irrespective of the type of connection.<sup>13</sup>



76. Again, Vector has no information to suggest that this trend is reversing. We therefore **recommend** the Commission adjust each EDB’s revenue growth forecast to account for their historic average variance between ICP growth and population growth on their network since 2009.

<sup>12</sup> Based on 2013 Statistics New Zealand Census data.

<sup>13</sup> We have used Vector’s total ICP growth rate because in recent years Vector has progressively reformed its tariff structures, which had the effect of moving some consumer groups between the disclosed “small” and “medium” categories. Therefore a rate of changed based only on small connections would not be reliable. In these circumstances, Vector considers the comparison against the growth rate of total ICP connections is the best approach, noting that residential connections make up 88% of our total connections.

### *Auckland Housing Accord*

77. The Commission may be aware that in 2013 the Auckland Council and the Government signed the Auckland Housing Accord, which aims to support the construction of 39,000 new houses in Auckland over the three years from 30 September 2013, or 13,000 per year on average. This is substantially higher than historical levels of new connections in Auckland – for an example, refer to Schedule 9e of Vector’s 2013 Information Disclosures which reports that there were 5,230 new ICPs connected in the 2013 year, and some of these were not residential connections.<sup>14</sup> We are already more than six months into the three year period covered by the Housing Accord and we are seeing residential connection rates growing at a far lower rate than was expected by the Housing Accord.
78. It is therefore unlikely that we will experience the growth rate of new connections that were forecast in the Auckland Housing Accord and do not believe it can, on its own, be viewed as a robust input into the Commission’s forecasts of revenue growth (or expenditure) on Vector’s network.

### **Forecasting opex**

#### *Initial level of opex*

79. In principle, Vector supports the use of the most recent data available. This should be most reflective of current costs of each EDB and where there are significant variations from previous years it should be possible to explain those. However, Vector appreciates the Commission’s concern that 2014 expenditure may not reflect future efficient operating costs for all EDBs. Therefore, Vector could accept an average of 2013 and 2014 disclosed opex (adjusted to constant prices) for each EDB as the initial level of operating expenditure.
80. Using the average of 2013 and 2014 will smooth out the effects of one-off changes in expenditure, while still relying only on relatively recent data. Using pre-2013 data risks relying on information that is too old to reliably reflect costs over the 2015-2020 regulatory period. It would also create risks by using a dataset that was not prepared in accordance with the new information disclosure / input methodology requirements.

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<sup>14</sup> Similarly in 2012 and 2011 we reported 3,528 and 4,089 new connections, respectively.

### *Network and non-network opex*

81. Vector supports the work undertaken by the ENA working group on forecasting approaches (the Forecasting WG). The Forecasting WG's report by Frontier Economics provides some helpful perspectives on ways in which the Commission's opex model could be improved. As already mentioned, Vector has also sought expert econometric advice on DPP forecasting inputs from Network Strategies and attach their advice to this submission.
82. Both Frontier Economics and Network Strategies concur that the Commission's model could be improved if additional or alternative drivers were used.
83. For non-network opex, Network Strategies recommend using a model with population and network length as the drivers, which improves  $R^2$  from 0.88 to 0.91 compared to the Commission's model. Using population as a driver makes intuitive sense, as the growth (or decline) of population is a likely indicator of distributor activity.
84. Similarly for network opex, Network Strategies found that using a density variable (ICPs per km) and network length provided a superior fit model, increasing  $R^2$  from 0.81 to 0.89 compared to the Commission's model. Vector agrees that network density is a key driver for opex, particularly for urban networks, because:
  - a) Urban network growth tends to result in greater transformer capacity and not network length;
  - b) Customer growth tends to occur within the same areas by a process of subdividing properties, and a trend towards higher density housing;
  - c) The increase in the number of consumers' premises within an area will increase the number of assets (transformers, switchgear, etc) per km of line; and
  - d) All assets require maintenance. More equipment per km of line means more equipment to maintain, and higher network opex.
85. Vector does not have a firm view at this stage of which model is "best". However, we **recommend** the Commission consider the reports of Frontier Economics and Network Strategies, and the extent to which the cost drivers they have identified can be matched to a business or engineering logic, when developing its approach to measuring the impact of changes in network scale on network and non-network opex.

### *Changes in opex input prices*

86. Vector agrees with Frontier Economics that there is no reason to suppose inflation predictions based on general input prices that cover all industries will closely match the changes in EDBs' input costs. However, for this reset Vector supports the Commission's proposal to adopt the same approach to forecasting input prices by using the "all industries labour cost index" (LCI), and the "all industries producer price index" (PPI), weighted by 60% and 40% respectively. Our reasons are set out below.
87. Although using more industry specific PPI projections can help reduce forecasting error, they can also be much more volatile; on this basis Vector considers that using the "All industry" PPI for this reset would be the better option.
88. Further, Vector has reviewed the "All industry" LCI and "Electricity, Gas, Water and Waste Water" LCI; the average of these over 2002-2013 are 2.45% and 2.47% respectively, which suggests using the All industry LCI would be reasonable. However, this should be reviewed for the next reset.

### **Forecasting capex**

#### *Overall comments*

89. The Commission proposes to investigate potential models for forecasting Asset Replacement and Renewal and System Growth capex. For all other categories, it is exploring options to allow distributors to rely on their own forecasts - subject to limits based on historical averages.
90. Vector supports the Commission's efforts to investigate potential models for capex categories, and discusses these below. However, given the untested and experimental nature of these models Vector believes the best option for forecasting capex for the next regulatory period is to use distributor capex forecasts, subject to a cap based on historical average expenditure. This is consistent with the relatively low-cost nature of the DPP and relies on readily available information.

#### *Econometric models*

91. The reports by the Forecasting WG and Network Strategies (as mentioned above) provide suggestions of potential econometric capex models. Both reports found suitable models for total and network capex. However neither

found a suitable model for non-network capex, which is not surprising given its volatility.

92. Network Strategies recommend using a total capex model. Its preferred model includes the drivers network length, electricity supplied to ICPs and overhead proportion (which correlates negatively). Although network length and overhead proportion appear to be intuitive drivers, it is less clear whether there is a direct engineering relationship between capex and electricity supplied.
93. Vector considers that these reports and recommendations provide a useful contribution to the debate on how capex could be modelled under a DPP. However, the models remain untested. Thus, we consider that econometric models for capex are best utilised in a "shadow" form for this reset – i.e. the Commission could usefully identify what each EDB's capex allowance would be using an econometric approach and compare this forecast to actuals at the time of the next reset.

#### *Age-based survivor model for asset replacement and renewal*

94. Vector supports investigations into the feasibility of an age-based survivor model. We will be interested to review and consider any such model that is developed by the Commission. However, in our view it is unlikely that the Commission will be able to develop a sufficiently robust model in time for the 2015 reset decision due to issues relating to the available data.
95. We discuss some of these issues below.
  - *Issues with asset age information*

Due to historical issues, asset age information is likely to vary greatly across distributors. Distributors are unlikely to apply the same set of assumptions to their assets and, thus, asset age information is likely to be inconsistent across networks. The Commission should bear this in mind when developing a model that relies on asset age information.
  - *Using a normal distribution curve*

Paragraph B19.2 implies that the Commission will apply the same probability distribution to every asset in each asset category, regardless of the age of the assets. This implies that data provided in Schedule 9b of the Information Disclosures will not be used for this purpose. If this is the Commission's intention, Vector notes that using a normalised age distribution is not realistic for the vast majority of the asset types,

partly due to lack of quality historical data to back up this hypothesis, but mainly because asset age profile has a close correlation to network growth rate. For many networks growth rates have varied dramatically over time, meaning the age profile is quite 'lumpy', matching periods of high network growth.

- *Alternatives to using inflation adjusted ODV*  
Vector would not be comfortable with a model that only uses inflation-adjusted 2004 values to set unit costs, as this would likely lead to significant errors in cost estimates due to the cumulative effect of inflation factors over a long period of time. For this reset, Vector **recommends** using the PWC ODV Handbook 2010 developed for the ENA as the base for the unit cost data.<sup>15</sup> The PWC Handbook would provide more up to date information, require less inflation-adjustments and has the support of ENA members.
- *Using the average age of each distributor's network*  
Vector considers that comparing average age data against capex forecasts as a cross-checking exercise is not as straightforward as it appears. For example, it would be necessary to consider how the asset ages are weighted and how the trend in average ages for each EDB changes over time.
- *Individual models vs industry wide model*  
Vector's preference is to develop individual models for each distributor. This would allow some unique network characteristics to be catered for, such as environmental, terrain, and climatic variations across the country. Although, we realise that it would not be feasible to consider every individual characteristic, an individual model approach would at least provide the provision for some (i.e. the most important) characteristics to be catered for.

#### *Model for system growth*

96. In the Issues Paper, the Commission confirms that it will most likely not be developing a model for system growth capex forecasting for the 2015 reset. Vector agrees that developing such a model in time for the reset is unlikely to be practicable. However, the Commission does not discuss any options for an alternative approach. Vector puts forward one potential high-level option below.

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<sup>15</sup> *Report to the Electricity Networks Association – Revised ODV Handbook*, 9 August 2010 (published by PWC in conjunction with SKM).



97. In our experience, ICP growth and system growth capex correlate well over time. An internal analysis of Vector's system growth against ICP growth across 2010-2014 gives a correlation with an R statistic of 0.95.
98. This intuitively makes sense as increases in new connections drive increases in peak demand, which in turn will require investment in new assets to cater for network growth. We understand that the Commission will already need to develop an ICP growth forecast for its revenue forecasting, as discussed above. Vector submits that the Commission could utilise that forecast as the assumed growth rate of system growth capex over the regulatory period, from a suitable base year (perhaps the average of 2013 and 2014 system growth capex; as categorisation into this category pre-2013 may not have been done on a consistent basis with the post-2013 disclosures<sup>16</sup>).

#### *Other capex categories*

99. For all other capex categories, the Commission proposes relying on supplier forecasts capped at a level associated with historical trends. However, Vector's forecasts of customer connections and reliability, safety and environment driven expenditure in its current AMP are higher than historic trends.
100. For reliability, safety and environment capex, this is largely due to a change in categorisation of capex categories. As discussed in Section 9 of our 2013 AMP, Vector has always invested in order to make improvements to reliability, safety and environment, but these investments have usually been part of projects that deliver other benefits and hence have been reported in different capex categories in our disclosures. Therefore, under the new Information Disclosure Determinations, we report more capex in this category.
101. Additionally, in our current AMP there are projects specifically aimed at improving reliability, safety or environment, which is somewhat unusual. Therefore, historical trends will not provide a reliable forecast of reliability, safety and environment capex for this reset (or, for that matter, other categories where capex has been reclassified from those categories into the reliability, safety and environment category).

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<sup>16</sup> Vector Limited, *Submission to the Commerce Commission on initial observations of EDB forecasts*, 23 December 2013, paragraph 62.

102. For customer connections capex, the level of expenditure required will be driven by consumer demands. If consumers request fewer new connections than we expect, then we would not need to spend as much customer connection capex as is set out in our forecasts. On that basis, a forecast of historic trends plus 20% for customer connection capex may not be inappropriate.

*Recommended capex forecasting approach for 2015*

103. To conclude, there are significant concerns regarding the accuracy of models to forecast replacement and renewal and system growth capex. There are possibly even more concerns regarding the use of econometric models for forecasting total network capex. It is also difficult to use suppliers' forecasts adjusted by a cap based on historical trends at an individual capex category level as at least some EDBs will have changed how they allocate capex between the categories under the new disclosure regime and/or over time.
104. As a result, we consider the best approach would be to apply the gas DPP approach of utilising suppliers forecasts of network capex and non-network capex with a cap applied at 120% of each EDB's average capex over the period 2008-2014 (being the period starting with the first disclosures made under the Information Disclosure Requirements 2008). In our view above-cap allowances should also be able to be provided for in certain circumstances, as discussed below.
105. Where EDB's capex forecasts are greater than 120% of historic trends as a result of "atypical" expenditure, Vector **recommends** that suppliers are able to seek an independent engineer's report and directors' certification that the atypical expenditure is required within the DPP period. This would reduce the probability of CPP applications being made for reasons other than step-changes in expenditure. In our view, it should not be necessary for CPP applications to be made to deal with unusual "one-off" expenditures that do not reflect an overall step-change in network costs.
106. To this end, it may be useful for the Commission set up an industry working group to consider an appropriate definition of "atypical" expenditure that could be used for these purposes.

*Changes in capex input prices*

107. Vector supports the Commission's proposal to use the All Groups Capital Goods Price Index. We note the recommendations by Frontier Economics in

its report to the Forecasting WG to develop a composite capex escalator for each EDB. However, the data to develop such an escalator is not currently available.

### **Productivity Estimates**

108. The Commission intends to develop total factor productivity estimates for the purposes of setting the X-factor, a capex partial productivity rate and an opex partial productivity rate.
109. In paragraph 3.14 the Commission puts forward its current view that “if there has been a deterioration in partial productivity, this change is likely to be temporary, e.g. due to temporary declines in demand.” Vector notes that the Commission does not provide any evidence or analysis to support a view that any declines in demand are temporary. We refers the Commission to our analysis above in relation to revenue growth, which shows a consistent declining trend of usage per ICP on our network since at least 2005 as evidence that the declining trend does not appear to be temporary.

### **Out-of-trend changes in expenditure**

110. The Commission has confirmed it remains open to considering whether adjustments are required for changes in opex that are not reflected in the historical trend information likely to be used to forecast opex over the forthcoming regulatory period. The Commission sets out the following criteria for such adjustments to be considered:
  - a) Significant;
  - b) Can be robustly verified;
  - c) Cannot be captured in other components of the Commission’s forecasts;
  - d) Are largely outside the control of the distributor;
  - e) In principle, would apply to most, if not all, distributors.
111. Vector submits that these tests are unduly restrictive if the only opportunity to include out-of-trend costs within the DPP is at each reset. For example, the changes to Health and Safety legislation are not yet finalised so it is likely to be infeasible to develop forecasts that “can be robustly verified” of the cost implications at this stage. Similarly, it will not be possible to determine the increased costs associated with maintenance of service lines to the necessary degree of precision before November 2014.
112. Vector considers that the appropriate time to address these issues is through an expanded reopener mechanism within the DPP, consistent with the

judgement of the High Court. Vector **recommends** the reopener IM amendment is progressed as quickly as possible and the DPP determination is drafted in such a way to cater for reopeners even if the IM amendments are not finalised until after the DPP determination is made. The Commission should also take a supportive approach when assessing whether legislative events qualify as “change events” as defined in the IMs.

## **Incentives for Service Quality**

### *Overall comments on the quality incentives proposal*

113. Vector considers the upcoming reset is an opportunity to review and improve the current quality regime and develop it to ensure it delivers the outcomes consumers want.
114. The current pass/fail regime is undesirable in the way in which it places EDBs at risk of civil and criminal penalties for variations in quality of supply, which are largely outside their control. It may also have undesirable incentive effects.
115. In our view, a revenue-linked regime has merit, subject to its design and the extent to which it reflects consumer demands.
116. However, it is not clear that consumers are willing to pay for improvements to their quality of supply. In 2009 the Commission said “in the absence of better information, the Commission considers that seeking to ensure no material deterioration over time is likely to provide a reasonable reflection of aggregate consumer preference.”<sup>17</sup> It is not clear to Vector that better information is yet available on New Zealand consumers’ willingness to pay for improvements to service quality.
117. Ideally, Vector considers that revenue-linked schemes should be introduced where it is clear that they will provide incentives that align with consumer preferences. In the absence of such information, a sensible approach for this reset would be to tread cautiously in terms of the level of revenue at risk and the incentive rate.
118. Vector’s comments on the features of a revenue-linked incentive regime (should the Commission decide to introduce it) are set out in the **Appendix**.

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<sup>17</sup> Commerce Commission, *Initial Reset of the Default Price-Quality Path for Electricity Distribution Businesses*, 30 November 2009, paragraph 6.9.

### *Reliability measures*

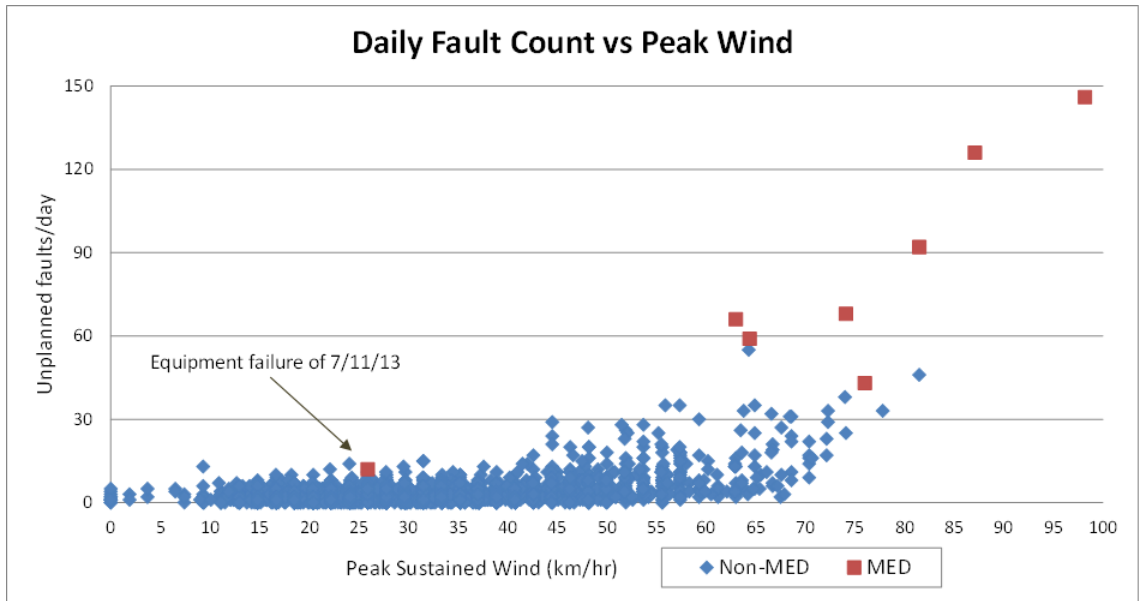
119. Vector agrees that, at least for the next reset, normalised, average SAIDI and SAIFI should be the reliability measures (including Class B and Class C interruptions). However, we consider that the measures ought to be weighted for planned and unplanned interruptions. For instance, in the UK planned interruptions are weighted by 50%. This weighting recognises that customers are much less inconvenienced by planned interruptions compared to unplanned interruptions, as they are likely to know about them in advance. Applying a weighting to planned interruptions also helps address the potential for distributors to unnecessarily delay maintenance or other planned work.
120. For the 2020 reset, Vector would support consideration of including additional quality measures in any reward / penalty schemes, if one is in place (e.g. measures relating to telephone answering or focusing on worst served customers). However, these refinements do not need to be considered further for this reset.

### *Reliability target*

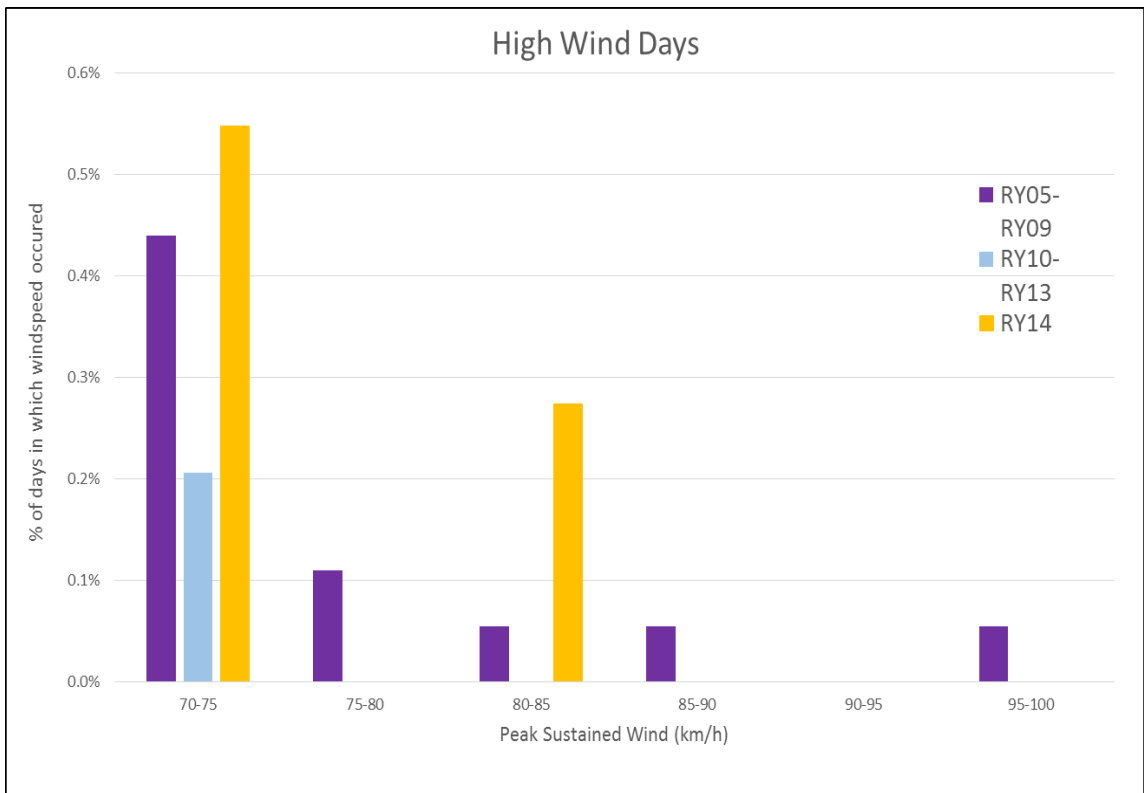
121. The quality standards regime requires a measure of actual performance against a predetermined target (whether under the current pass/fail regime or under a revenue-linked incentive regime). Therefore it is important that a robust and reliable methodology is used to set the targets for interruptions (i.e. SAIDI and SAIFI), while providing a sufficient degree of certainty for network planning and investment.
122. There are typically two approaches to establishing interruption performance targets:
  - i. Targets based on a fixed historical period; and
  - ii. Targets based on a rolling historical period.
123. The QoSI WG recommends using a fixed benchmark for the whole regulatory period based on historical performance, with allowance for natural variations to avoid false breaches and to ensure improvements in quality have been gained as a result of underlying performance improvements and not random influences.
124. Vector agrees with the QoSI WG and supports the continuation under the current DPP approach where targets are based on a fixed historical period. A fixed target provides greater certainty for network planning – as the target

distributors' need to meet is not subject to change within the regulatory period.

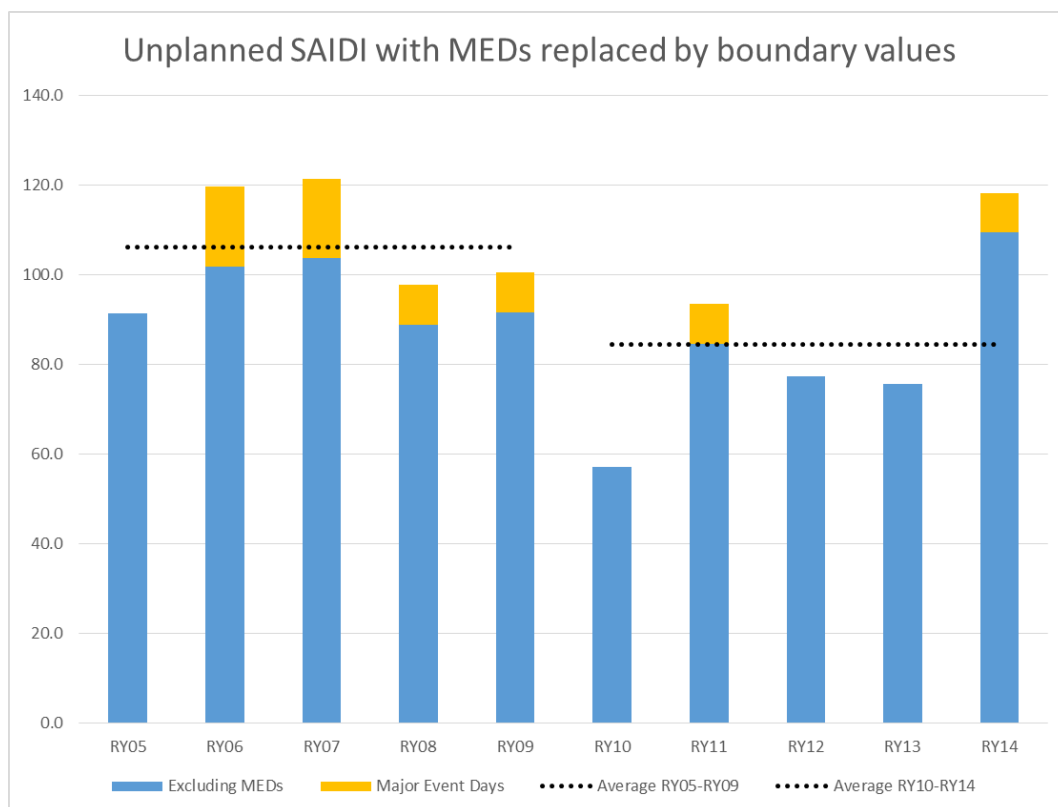
125. In principle, Vector considers that the reliability target for the next regulatory period should not be changed from the reliability target in the current regulatory period without corresponding adjustments in prices. For example, if the Commission were to set a reliability target that is lower than exists in the current regulatory period, that would require the EDB to invest to deliver a higher quality of service to its customers after 1 April 2015 than they had previously been required to. It is not reasonable to require the EDB to deliver this higher quality of service without compensating them for it through increased revenues (this is at the core of the price-quality trade-off). This would need to be done by way of a specific revenue adjustment (for example, a major driver of price-path variations at each reset will be the WACC that is used for the reset, but variations in the WACC will not reflect underlying service quality).
126. In the absence of any adjustment in prices that reflects payment for a different level of quality, Vector **recommends** the quality standard for the 2015-2020 regulatory period should remain unchanged from the quality standard for the 2010-2015 regulatory period.
127. If the Commission does not accept this recommendation, Vector's second preference is to set the reliability targets based on a historical average of performance over the past 10 years. In our view, this is appropriate due to the high variability of unplanned outages - attributable to weather patterns.
128. The graph below shows a correlation between increased (and sustained) wind speeds and the number of unplanned faults on Vector's network. High winds are usually accompanied by heavy rain and lightning, which combined often lead to unplanned faults on the network.



129. Vector’s network also experienced more days of very high wind speeds (i.e. wind speeds > 70 km/h) during the period 2005-2009 than over the current regulatory period, as illustrated in the graph below. The graph also indicates that the relatively benign weather over most of the current regulatory period has not continued into 2014, which may signal a return to the less favourable weather patterns we have previously experienced.



130. Vector submits that setting reliability targets based on SAIDI and SAIFI performance for 2010-2014 would not reflect average conditions on Vector’s network. The graph below shows the difference in average SAIDI performance over the last 10 years for days with high wind speed.



131. These graphs illustrate the impact of weather patterns on unplanned network outages, and the subsequent effect this has on SAIDI performance. Therefore we consider use of a 10 year historical average will help ensure the target is more representative of underlying network performance. Furthermore, the Intergovernmental Panel on Climate Change predicts that extreme weather events will become more common as climate change continues. For example, tropical cyclones are expected to increase in intensity in New Zealand and Australia.<sup>18</sup> This may well mean that EDBs could struggle to maintain current levels of reliability, unless they increase expenditures.

*Normalisation*

132. It is important to distinguish between events that can be controlled by sound asset maintenance practice ('normal' events) and events, which cannot be reasonably foreseen or controlled, such as extreme weather. Currently,

<sup>18</sup> See: [http://ipcc-wg2.gov/AR5/images/uploads/WGIIAR5-Chap25\\_FGDall.pdf](http://ipcc-wg2.gov/AR5/images/uploads/WGIIAR5-Chap25_FGDall.pdf)



SAIDI values are adjusted to account for the impact of extreme events – the intention being to distinguish the underlying performance trend from the impact of major events.

133. Vector considers that the current normalising method is not able to consistently distinguish between underlying network performance and the consequences of extraordinary events. In our view, the boundary values on major event days distort the overall result because they are disproportionately large compared to underlying daily averages.
134. Vector agrees with the QoSI WG's approach as set out in Table 11 of its report. Additionally, we consider that requiring the boundary values to be substituted for incurred SAIDI or SAIFI on major event days does not "normalise" it, or allow its underlying network performance to be distinguished from outages arising from extraordinary events. We also note that the IEEE methodology used to define boundary limits recommends that any major event days identified by the application of the Beta method be removed from the population.

## **Other performance related incentives**

### *Overall comments*

135. Vector welcomes the Commission's willingness to enhance incentives for performance improvements that are in the long-term benefit of consumers. We support the work undertaken in the areas outlined in paragraph 5.1, and welcome the Commission's draft decision to amend the IMs to implement an incremental rolling incentives scheme.
136. Vector supports the work undertaken by the ENA Energy Efficiency Incentives Working Group (EEI WG) and the recommendations put forward in its report. In particular, we believe that two of the recommendations (without prejudice to the EEI WG's other recommendations) could be implemented in the upcoming reset. These are a "D-Factor" regime, and recognising assets with shorter asset lives. We consider these below.

### *"D-Factor" regime*

137. Vector supports the EEI WG proposal to introduce a "D-factor" regime at the DPP reset to allow distributors to recover part of the revenue lost as a result of investing in energy efficient initiatives / assets that reduce demand. Vector has commissioned expert advice from Castalia on how a D-Factor

could be built into the current DPP framework. We attach this report to this submission.

138. Vector **recommends** the Commission consider its proposal as set out in Castalia's report, and implement a similar D-factor regime in the upcoming DPP reset.

*Shorter asset life depreciation for energy efficient assets*

139. Vector supports the EEI WG recommendation that the Commission should provide depreciation on assets with shorter lives:<sup>19</sup>

"The Commission should develop ways to make EDBs indifferent to the expected life of efficiency investments such as by using separate asset life assumptions for investments that meet certain conditions (such as not being investments in capacity expansions)".

140. Vector considers that in light of the findings from the EEI WG's report and its attached legal opinion on the Commission's statutory obligations under section 54Q, the Commission should provide different regulatory depreciation treatment for energy efficient and demand side management assets (EE assets), in recognition of its shorter asset life.
141. The current regulatory treatment under the DPP IMs assumes that all new distribution investment assets (i.e. "additional assets") have an asset life of 45 years (on average),<sup>20</sup> and does not provide for separate depreciation rates for assets with shorter lives. Therefore the current regulatory treatment creates an incentive to invest in assets with a longer asset life and a disincentive to invest in assets with a shorter asset life – i.e. for EE assets.<sup>21</sup> This is because investments in assets with a shorter life will forego higher levels of return and depreciation (as a percentage of investment value).
142. The reason this disincentive matters is because EDBs have discretion over the level of their investment in EE technologies. There are traditional network assets that also have lives of less than 45 years (for examples see Schedule A of the EDB IM Determination), but we do not need and are not seeking any different treatment for these assets within the DPP. It would not be feasible for an EDB to choose to only invest in traditional assets that have lives longer than 45 years as this would mean that certain unavoidable assets (e.g.

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<sup>19</sup> *Options and Incentives for Electricity Distribution businesses to Improve Supply and Demand Side Efficiency*, ENA Energy Efficiency Incentives Working Group, Table 6.1 p 48.

<sup>20</sup> Clause 4.2.2(3)(b) of the DPP IMs deems that the "remaining life for additional assets" is 45 years

<sup>21</sup> *Ibid*, n19, p39.

certain types of switchgear) could not be invested in. However, EDBs can choose whether to invest in a longer-life traditional asset or a shorter life EE asset. The DPP settings currently incentivise the former, which may not be in long-term interests of consumers.

143. Vector considers that changing the assumptions around depreciation would help deliver long-term benefits to consumers by incentivising investments in EE assets. Investment in EE technology can provide consumers with more options and help consumers to better manage peak usage. Additionally, EE assets can defer the need for more traditional investments throughout the supply chain. This in turn is beneficial for consumers who ultimately receive the benefits through more affordable energy.
144. To this end, Vector **recommends** the Commission enables adjustments for depreciation of EE assets as part of the DPP. We understand that the Commission is considering a capex incentive mechanism that would remove the current disincentives around depreciation and asset life length.<sup>22</sup> However, this incentive mechanism has not been publicised and we have limited information regarding how it may work. If the Commission decides not to implement a capex incentive, or the capex incentive does not address the 45-year issue for EE assets, we propose that this issue be addressed through an alternative approach - we discuss this below.

*Possible approaches for calculating wash-up amount for EE asset depreciation*

145. In principle, distributors should be able to expect to fully recover their return of capital for EE investments provided they are made for the long term benefit of consumers, irrespective of the remaining life of the relevant assets.
146. One approach would be to forecast expenditure on EE assets and allow for a different depreciation profile to be applied to the forecast capex amount. However, developing a robust forecast of EE expenditure for each EDB would be challenging.
147. This would also require an amendment to the IMs to provide for a different average life for new EE assets, but this is unlikely to be feasible before the 2015 reset.
148. Our suggested approach is therefore to utilise the actual EE capex that is disclosed by each EDB in schedule 6a to determine a more accurate estimate

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<sup>22</sup> Vector basis this view on recent, informal, conversations with Commission staff.

of depreciation on EE assets that can then be washed-up through the DPP regulatory period.

149. The wash up would apply a shorter remaining asset life, for example 15 years, to the actual EE asset expenditure disclosed in Schedule 6a and adjust revenues to account for the different values of depreciation. For example, this could involve the following steps:

Example of how the variation in depreciation values could be calculated for EE assets:

- 1) Beginning of reset:  
Forecast total capex for each year of the regulatory period (as per status quo).
  - 2) End of first disclosure year:  
Schedule 6a is completed, audited and receives directors' certification.
  - 3) Calculate actual EE asset spend as per Schedule 6a (if any)  
E.g. find the value of EE assets that have been commissioned within the regulatory year ("EE RAB").
  - 4) Calculate depreciation on the EE RAB value if the remaining asset life was 15 years.
  - 5) Calculate depreciation on the EE RAB value if the remaining asset life was 45 years.
  - 6) Subtract the result of item 4 from the result of item 5. The outcome could be washed up utilising the formula provided in the attached PWC report on revaluations (discussed above).
  - 7) For each subsequent year, repeat the steps above for that year. For EE assets commissioned and disclosed in previous years of the regulatory period, carry out the same steps using the 45 year and 15 year asset lives, minus the number of disclosure years since the investment was made. In effect, this may require the maintenance of a separate asset register for EE assets commissioned within each regulatory period.
150. The Schedule disclosures for EE assets would be subject to directors' certification and independent audit. This should give the Commission confidence the assets to which a lower asset life is applied were all EE investments only. If the Commission required further comfort, it could require an independent engineer to certify the average lives of classes of EE assets that are being invested in by EDBs (this could mean that actual asset lives rather than the 15 year assumption could be used in the wash-up calculations above).

## **Treatment of assets purchased from Transpower**

151. In Attachment C of the Issues Paper the Commission discusses the treatment of assets purchased by EDBs from Transpower. Vector agrees that it would be helpful to clarify how these asset purchases will be treated at DPP resets.
152. It is important to recognise that not all asset purchases from Transpower require a particular mechanism for them to be dealt with in the DPP reset. From time-to-time Vector makes very small asset purchases from Transpower that do not need to be captured by a separate mechanism within the DPP.<sup>23</sup> Vector **recommends** that any specific provision on Transpower asset purchases should be drafted carefully to ensure it only captures transactions that lead to ACOT payments being made to the EDB.

## **Further 53ZD requests**

153. Paragraph 8.25 states the Commission anticipates issuing further section 53ZD information requests at the time of its draft decision.
154. Vector **recommends** the Commission consult on the form of information sought, before the section 53ZD request is issued. This will help ensure that the information sought is provided in a consistent, useful and appropriate form. Additionally, the Commission should provide sufficient time for EDBs to gather and check the information and undertake necessary internal audit and sign-off processes.

## **DPP drafting issues**

### *Restructuring of prices*

155. As previously submitted by Vector,<sup>24</sup> it is necessary to amend the clauses relating to restructuring within the DPP determination. The determination should refer to "notional revenue" and not "allowable notional revenue", as allowable notional revenue does not depend on prices. Clause 8.5 should be redrafted so that it is consistent with the equivalent clauses of the GTB and GDB DPP determinations (clauses 11.4).

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<sup>23</sup> For example, see Schedule B Vector's draft information request response of February 2014.

<sup>24</sup> Vector Limited, Implementation of the Default Price-Quality Path for Gas Pipeline Services, 18 February 2013, paragraphs 12-18.

156. Further, clause 8.5(a) requires determining what tariffs would have been if the restructure had not occurred. This is not a feasible exercise and should be removed.

*Potential new pass-through cost*

157. The Electricity Authority's recent consultation paper on *Efficient procurement of extended reserves – draft Code Amendments* (dated 8 April 2014) indicates there might be a new pass-through created as a result the Authority's proposals – compensation payments/charges in relation to AUFLS and other extended reserves. The Authority's consultation paper indicates that the Commission is in principle supportive of this proposal.<sup>25</sup>
158. Vector **recommends** the DPP reset provide for this new pass-through cost and avoid the need to amend the DPP determination at a later date. If it is not considered at the reset it may not meet the test under clause 3.1.2(3)(c) of the IMs, where a levy must have been "reasonably unforeseen" at the time the DPP determination was made in order to be a pass-through cost not already listed in the IMs.

*Definition of "Class C Interruptions"*

159. In the current EDB DPP determination "Class C Interruptions" is defined as "unplanned interruptions originating within the System Fixed Assets of a Non-exempt EDB". That is, assets "owned, provided, maintained or operated by distributors or Transpower" (via the definition of System Fixed Assets).
160. Transpower's IPP determination defines "interruption" in relation to the grid assets *owned* by Transpower.
161. This means that interruptions caused by an asset that is both owned by Transpower and maintained by a distributor would count towards the quality standard of both parties. This double counting seems unintentional, and is undesirable. Vector **recommends** the Commission amend the DPP Determination to remove this undesirable effect. This can be done by removing the words "or Transpower" from the definition of "System Fixed Assets" in the DPP Determination.

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<sup>25</sup> <http://www.ea.govt.nz/development/work-programme/wholesale/efficient-procurement-extended-reserves/consultations/#c12197>; section 5.8 of the consultation paper.

## Appendix: S-factor incentive scheme

162. This appendix sets out Vector's views on key elements of a revenue-linked incentive scheme for quality of supply, should such a scheme be introduced.

### *Quality incentive rate*

163. Vector agrees that the incentive rate is one of the key features of a revenue-linked quality incentives regime. An incentive rate could be developed based on the AER's approach, which centres around the value of lost load to the consumer (VoLL). VoLL is a relatively rough approximation of the value of supply to consumers but, especially in the DPP context, may be the best option available. Some international incentive schemes have previously been based on the cost to the distributor of improving quality. Our view is that the value to the consumer is a more appropriate benchmark – if the cost to the distributor of making an improvement is greater than the value of the improvement to the consumer, then the improvement should not be made.<sup>26</sup>
164. Vector agrees that there should be scope to refine the incentive rate overtime, based on experience.

### *Revenue at risk*

165. Vector agrees with the Commission's comments on revenue at risk. The appropriate revenue at risk is one that provides meaningful incentives so that distributors will want to invest to outperform their target, but does not expose them to excessive risk. Vector also agrees that distributors should not be rewarded or penalised for precisely meeting their reliability target.
166. Vector also agrees that the reward / penalty should be symmetrical. This is because the value to the consumer of a single unit's improvement, or deterioration, in service quality should be assumed to be equal in the absence of evidence to the contrary.
167. Vector **recommends** a conservative level of total revenue at risk should be in place to begin with, e.g. 1% of total revenue (MAR), subject to review once experience has been gained. As discussed in the main body of this submission, in the absence of evidence that shows consumers are willing to pay for marked improvements to the network, we consider that a relatively conservative level of reward / penalty is appropriate.

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<sup>26</sup> For more details of how an incentive rate based on VoLL could work, see Electricity Networks Association submission to the Commerce Commission, *Developing a framework for establishing quality performance measures under the Commerce Act 1986*, 8 May 2009.

*Timeframe for applying the S-factor*

168. There are two options for calculating and applying the s-factor's financial adjustment (reward or penalty):
- a year-on-year basis; or
  - a lagged approach.
169. Under the year-on-year option, the reward or penalty for performance over the current year (t) would be applied to revenues in year t+2 (the lag is necessary to allow a full year's performance to be known). Under the lagged option, the reward or penalty for performance over the current regulatory period could be applied to revenues over the next regulatory period (adjusted for the time value of money).
170. Vector **recommends** a lagged approach be applied.
171. A year-on-year approach allows distributors to reap the benefits of their investments and good performance within a shorter timeframe. However as revenue will be adjusted on an annual basis, businesses will face increased uncertainty around the allowable revenue from year-on-year. This will be worsened by the year-on-year volatility of SAIDI and SAIFI indices themselves, risking price volatility (shock), and much of this annual volatility will be outside the control of EDBs.
172. The year-on-year approach also has an added layer of complexity that requires removal of the revenue increase / decrease from the previous year – as the s-factor only applies to a single year.
173. By comparison, the lagged approach is simpler and less costly to implement, where revenue for a given period of years is adjusted by the average s-factor incentive of a previous period (subject to the cap and time value adjustment of money). This approach also allows for a smoothed price-path, removing risk of increased price volatility and negating the need for an s-factor removal mechanism, providing more certainty of revenues over a regulatory period.